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# REVIEW OF MILITARY LITERATURE

*THE COMMAND AND GENERAL STAFF SCHOOL  
QUARTERLY*

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*Editor* —  
MAJOR FRED DURING

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## FOREWORD

The object of this publication is a systematic review of current military literature, through cataloging articles of professional value, in selected military and naval periodicals, in the domestic and foreign field.

Articles from foreign periodicals are treated by translations of titles and digests of contents; material of particular importance is covered more extensively in a Section of "Abstracts of Foreign-language Articles."

A "Library Bulletin" Section lists books, recently accessioned, which are of particular significance.

This Review is published as a guide to modern military tendencies and to inspire vigorous thought on the subjects treated.

The opinions expressed by authors are not necessarily official.

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**REVIEW OF MILITARY LITERATURE**

Volume XVI

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A—Foreign-language Periodicals; B—English-language Periodicals;  
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Maj. G.J. Braun: *Militär-Wochenblatt* (18 May-4 October 1935), *Wissen und Wehr* (July, August, September 1935).

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Lt. Col. S. J. Heidner: *Sanct Christophorus* (July, August, September 1935).

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Section 1  
ORIGINAL MILITARY STUDY

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**THE INFLUENCE OF ECONOMIC CONTROL AGENCIES  
ON THE CONDUCT OF WAR**

By Major Jas. H. Beals Bogman, Signal Corps

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It is the purpose of this paper to point out the necessity to national defense of a careful consideration of the government's policies for economic regulation in a peace-time emergency with a view to coordination of national effort in the event of a future war.

The continuing studies of the War Department for the organization of the national economy in a future war emergency must keep closely identified with current economic development and they should seek a flexibility of policy which will effect the desired regulation with the least possible disruption to the normal life of the country.

It is foreseen as possible that certain of the peace-time emergency agencies will become a permanent part of the governmental structure and that the functions which they will continue to perform will have a profound effect on the life of the nation as a whole and specifically on a war-time regulatory program.

Many of the elements of a capitalistic order, on which plans for industrial mobilization were originally formulated, may disappear permanently from the national picture; the question therefore arises at what point will direct peace-time regulation by the government be restricted, and can this recovery regulation be carried on to a logical end in the face of political changes and the divergent views of persons in high official places.

The impact of a war will come first on the governmental structure and secondly on the industrial and social structures; and since the demands of war are absolute, national planning efforts should at all times look toward national strength.

It is intended to complement the study presented in the pamphlet *Economic Planning and National Defense*, by reviewing the current economic conditions in the light of national defense and to attempt to foresee the changes in the social and industrial structures in what is believed to be a changing economic order.

General information has been obtained from the public press, War Department documents, publications of the emergency agencies, and from readings in periodicals which discuss the sociological processes now being carried on under special legislative enactments. Specifically in the last-named classification is the Annals of the American Academy of Political and Social Science. Credit has been given in all instances for direct quotation and for individual thought.

A great deal of thought has been given by military authorities in all the great countries of the world as to what might be the character of another war. Many opinions have been based on studies of international political problems and of scientific developments in armaments of defense, and many theories have been advanced as to what developments war itself might bring about which might determine the ultimate nature of a future conflict between nations.

The book entitled *What Would Be the Character of a New War* (\*) presents a diversity of opinion and theory by high-ranking military authorities of many nations as to the characteristics of a future war. Among the possibilities discussed are: an aerial war such as has not yet been planned for on any practical basis and calling for a "technical perfection" of aerial arms; a war of chemicals, depending superficially on position of armies and principally upon scientific exactitude in the problems of supply and utilization; a bacteriological warfare; an electrical warfare; and other types which, so far, are outside the experience of modern warfare and which come in the zone of theory rather than actual opinion. All are agreed that an army of greater mobility is of primary consideration.

Considerable discussion is also devoted to the so-called "war potential." In the opinion of the writer the term signifies an economic potential; it follows then, that economic control agencies exert their influence on the conduct of war in proportion to the degree in which they affect the war potential. As an economic concept in the study of modern warfare this potential is subject to many variables in theory, the correlation coefficient of which should be based on (a) the character of the conflict itself, and (b) the degree in which a country may be economically self-sufficient.

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(\*) Enquiry organized by the Inter-Parliamentary Union.

The study of the application of the basic principles of tactics and strategy to whatever form modern warfare might assume, as well as the adaptation and effective utilization of modern implements of warfare to whatever purpose shall be necessary, is the mission of the military high command. The responsibility for the successful conduct of modern warfare rests primarily with those officers of an army who have knowledge of military history, who have knowledge of modern armament, who not only have knowledge of the plans of their own country for national defense but shall analyze the methods by which an opposing nation might undertake to defend itself; and last but by no means least they shall have knowledge of the leadership of men.

In this country it is the War Department General Staff, under the Chief of Staff, who formulates war plans and policies and who, in the event of a major emergency, will report to the Congress the estimates for man power and materials necessary to the conduct of war.

The duties of the Chief of Staff, as head of the General Staff, as they are stated in certain directives of the War Department, are: preparation of the necessary plans for recruiting, organizing, supplying, equipping, mobilizing, training and, demobilizing the Army of the United States, and for the use of the military forces for national defense. These duties group themselves into specific functions, and these functions are organized into sections as follows, each under the head of an Assistant Chief of Staff:

G-1, Personnel

G-2, Military Intelligence

G-3, Operations and Training

G-4, Supply

W.P.D.—War Plans Division

Budget and Legislative Planning Branch.

The War Plans Division is the tactical and strategical section whose activities look toward operations at the line of contact with the enemy; accordingly it must have comprehensive data concerning supplies and personnel. The Budget and Legislative Planning Branch is a functional organization which handles all questions of War Department legislation and supervises the preparation of the peace-time budget. In a lecture before the Army War College, Washington, General Hugh A. Drum has covered very thoroughly the background,

development, and functions of the War Department General Staff. (1)

The commodities of war are men and materials—the first or most important commodity is men. A condition of war presupposes that the entire man power of a nation is available to its purpose. It is a commodity in finished form. Research and inquiry into the conduct of war are predicated on no shortage of man power, rather it is concentrated on the science of the specialized use of this first commodity of a war effort. The study of a plan for war, then, becomes one of the effective uses of man power and of the proportioning of men and materials in relation to the war effort; to train men, equip them, and put them into motion in conformity with a plan. However, it has been stated (2) that it is not an army alone that we must shape and train for war; it is a nation.

The history of our wars, prior to the World War, shows that the problem of industrial reinforcement—or material supply—had been a secondary one. Huidekoper (3) discusses the legal restrictions upon reserve supplies that were obtained in this country prior to the World War and points out that "Adequate preparation for war has never yet in history been made after the beginning of hostilities without unnecessary slaughter, unjustifiable expense, and national peril." During the World War—to quote from Colonel Menu (4)—"Armies stopped when they no longer had ammunition; they resumed operations in the measure that production allowed." That quotation is in the nature of a summary; it gives no picture of the tremendous efforts of the countries participating in that conflict to maintain the production on which their national security had come to depend.

The causes of wars have been reputed to be primarily economic; and war itself has been defined as a business "to procure or preserve foreign markets . . . the means of growth and prosperity." (5)

The position of the military establishment as an economic instrument has become anomalous in modern times since the economic objectives of war and the means of achieving them have become so widely separated. Armies are trained

(1) Drum, Gen Hugh A., Lecture.

(2) Citation from Hearings.

(3) Huidekoper, F.L.

(4) Menu, Lecture.

(5) Robinson, Edward Van Dyke.

in the strategy of war, and the preservation of the nation—from whatever cause—is their sole mission. Commanding generals no longer look to any economic gain.

As already stated, prior to the World War the economic (and political) organizations of this country took little cognizance of national defense in terms of the products of industry. The government manufactured and maintained at its arsenals certain quantities and types of materials with which it was proposed to equip initially any army which might be called into active service. That this could not be done effectively is now a part of military history.

At this point a curious phenomenon in national psychology might be mentioned. This country supports no national propagandist effort. The military establishment is supported by the taxpayer in times of peace. The appropriations for this support are curtailed largely on the basis that it is a parasite on the national economy and that, if not restrained through public sentiment (as represented by certain reactionary social elements) is planning to go to war. It is conceived in time of peace to be an instrument of evil; in time of war it becomes an instrument to restore peace. This is one of the anomalies of our national life which might be a subject for intensive study—how to effect a form of publicity that could be supported by public opinion.

The writer would like to quote here some views expressed in the study on national defense which was published by the War Department in 1933:

The terms "war planning" and "national defense" are synonymous within the military organization and mean the *study* of the science of warfare primarily for defensive purposes. The psychological effect which has been produced by the phrase "war planning" is one of the first factors to be overcome in the organization of public opinion in support of any war effort which this country might be forced to make. There are, for instance, certain factions whose religious or moral convictions do not permit of any participation in combative warfare. Perhaps an intelligent means of promoting the idea of preparedness for national defense, as against that of planning for a war of aggression, which more naturally supports these beliefs, could be utilized to modify the effect which it would have on public opinion as a whole.

The mobilizing of public sentiment has been expressed as being difficult of accomplishment, due to habits of thought which exists as a result of racial admixtures, religious beliefs (and political importuning).

In time of peace and prosperity the populace will have little to do with governmental participation in its affairs. In time of an emergency, the various groups, generally, have demonstrated their willingness to place responsibility for their welfare in the hands of their government. The situation is not greatly different in time of war—whether economic security is attacked from within or from without it is to the government that the people turn in the time when the foundations of their existence can no longer be maintained by their own efforts.

It is an unfortunate circumstance that the War Department must curtail in peace-time any efforts that might admit of publicity or the shaping of public opinion in the matter of clarifying its mission. To do this, however intelligently, is to become prey to the propagandism of reactionary groups against which, in turn, only nominal censorship is exercised.

This discussion is somewhat parenthetical but ties in closely to the idea of industrial participation in the national defense project.

Recent congressional investigations which purport to do away with profiteering in the field of munitions manufacture present a national viewpoint pertinent to this study. To take the profit out of war has been for some time a part of the pre-planning effort of the War Department and forms a definite part of the national defense scheme. (') The action of the President in appointing a committee, with Mr. Bernard M. Baruch as chairman, to investigate the subject of munitions profiteering, is in line with the proposals made in the Hearings before the War Policies Commission in 1931 and with the memorandum submitted by Mr. Baruch (") pursuant to Public Resolution No. 98, 71st Congress. Unfortunately, back of such investigations as is mentioned above there often lies a sentiment of subversive pacifism and the influence of political considerations. The results in practically every case attach stigma to the object of such inquiries. In this connection it is probable that the indoctrination of public

(') Industrial Mobilization Plan, Revised 1933.

(") Baruch, B.M.

sentiment against private munitions makers will affect the degree of reliance that can be placed upon this class of industrialists in the event of another war. Also it might be interesting to note the expression of opinion by Sir John Simon before the British Parliament when a motion by Labor to outlaw private arms manufacture in Great Britain was rejected. He affirmed that it was of advantage to the State to have private capital assume the risk of maintaining in peace time arsenals on which the State's existence depends in time of war. (1)

It is not intended to discuss the moral aspects of private munitions manufacture. If there is involved an element which is not conducive to the national welfare as a whole, there exists adequate machinery to bring about any desirable readjustment. It is proposed to bring out the dependence of the national security in time of war upon the economic organization of the country, and to bring out the importance, to the armed forces charged with maintaining that security, of an adequate supply of materials—the second commodity of war.

It is believed that some discussion of the principles of economic regulation, both in peace and in war, is in order, since upon these principles rest what the writer believes to be the primary objectives of our national life, namely, an equalization of economic benefits in time of peace, and an equitable distribution of economic burdens in time of war.

In the United States, perhaps more than in other countries, the World War precedents form a basis for future planning, particularly from the standpoint of economic reinforcement.

During that World War the importance of supply attained to major proportions, and the phrase "men and materials" took on a significance outside mere military idiom. There were men but there were not immediately available sufficient materials with which to equip them; and more than that there existed no pre-plan or mechanism for material supply. Patriotic zeal afforded a tremendous impetus to the effort of equipping an army of one million men. The slow-moving governmental policies, the political influences, and the lack of adequate administrative organization at first are all history and are of record in the documents of the Council of National Defense and the War Industries Board. From that war experience has emerged the idea of planning for the organization of

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(1) Time.

a superagency for the control of the national economy in the event of another war emergency. This has been described by the writer in the booklet *Economic Planning and National Defense.* (<sup>10</sup>)

The United States now has, in the existence of its Industrial Mobilization Plan, a scheme for the regulation of economic activity in the event of a future war emergency and for the assurance of an adequate supply of materials essential to wartime needs. Although this plan for a superagency of control is being worked out and continued under the mandate of the National Defense Act, it is designed to be operated by civilian administrators in the event of a war emergency. Here, for the first time in the history of this country, an instrument for the preservation of the country is identified with the economics of war. The desired coordination of effort is at best still incomplete. The War Department design for supply includes intensive study of industrial participation in another major emergency.

The organization of national economy had not been undertaken by any country prior to the World War except insofar as Germany had incorporated certain economic units into her war scheme. During the reconstruction period, however, it was believed by many countries that a more effectual use of economic resources could be brought about through a unity of effort which would lead into regulation by an administrative body. An advisory council was envisaged as a mechanism that would reconcile economic differences and bring them into proper relationship to national aims. Of these advisory type councils the ones created by Germany in 1920 and by France in 1925 are perhaps the best examples. In Germany there was created a national council of representatives of the different economic groups of the country to advise the government on social and economic matters. Local bodies and committees were formed to effect complete representation. The government at that time submitted important social and economic bills to the council for opinion although there was no compulsion for it to do so. Under the present system of government the national economy of Germany is under a strict emergency regulation, that is to say, regulation is being exercised in accordance with current emergency problems and not in accordance with a national pre-planning

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(<sup>10</sup>) Bogman, J.H.B., *Economic Planning and National Defense.*

effort. The National Economic Council of France was established ("") "for the purpose of investigating problems connected with the economic life of the country, discovering their solutions and proposing to the public authorities the adoption of these solutions. The powers of the National Economic Council, which shall be autonomous in its composition, shall be of an advisory nature."

In this country planning for a peace-time economic regulation had been stimulated by certain phases of war rehabilitation, but this was carried on by several unrelated groups without official governmental representation before the election of President Roosevelt in 1932. The proposals for economic regulation in peace, however, had not reached the proportions of a *plan* before it was necessary to put regulation itself into effect.

There was not lacking an element of drama in the President's inaugural address when he stated that he would invoke, if necessary, the emergency powers of the President to regulate the economy of the country for the purpose of effecting industrial rehabilitation.

"It is to be hoped that the normal balance of executive and legislative authority may be wholly equal, wholly adequate to meet the unprecedented task before us. But it may be that an unprecedented demand and need for undelayed action may call for temporary departure from that normal balance of public procedure.

"I am prepared under my constitutional duty to recommend the measures that a stricken nation in the midst of a stricken world may require. These measures, or such other measures as the Congress may build out of its experience and wisdom, I shall seek, within my constitutional authority, to bring to speedy adoption.

"But in the event that the Congress shall fail to take one of these two courses, in the event that the national emergency is still critical, I shall not evade the clear course of duty that will then confront me. I shall ask the Congress for the one remaining instrument to meet the crisis—broad executive power to wage a war against the emergency, as great as the power that would be given me if we were in fact invaded by a foreign foe." ("")

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(<sup>11</sup>) France. Journal officiel.

(<sup>12</sup>) Roosevelt, Franklin D.

One of the first acts of the President was to assemble the best thought of the country in an effort to work out reconstruction measures.

The special session of the 73d Congress shows the following record of Economic Reconstruction Legislation: (<sup>18</sup>)

*Emergency Banking Act.*

"To provide relief in the existing national emergency in banking . . ."

*The Economy Act.*

"To maintain the Credit of the United States Government."

*Act Amending National Prohibition Act.*

"To provide revenue by the taxation of certain non-intoxicating liquor . . ."

*Unemployment Relief Act.*

"For the relief of unemployment through the performance of useful public work . . ."

*Agricultural Adjustment Act and Emergency Farm Mortgage Act.*

"To relieve the existing national economic emergency by increasing agricultural purchasing power, to raise revenue for extraordinary expenses incurred by reason of such emergency, to provide emergency relief with respect to agricultural indebtedness . . ."

*Federal Emergency Relief Act of 1933.*

"To provide for cooperation by the Federal Government with the several States and Territories and the District of Columbia in relieving the hardship and suffering caused by unemployment . . ."

*Tennessee Valley Authority Act.*

"To improve the navigability and to provide for the flood control of the Tennessee River; to provide for reforestation and the proper use of marginal lands in the Tennessee Valley; and industrial development of said valley; to provide for the national defense by the creation of a corporation for the operation of Government properties at and near Muscle Shoals in the State of Alabama . . ."

*Securities Act of 1933.*

"To provide full and fair disclosure of the character of securities sold in interstate and foreign commerce

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(<sup>18</sup>) National Industrial Conference Board, Inc.

and through the mails, and to prevent frauds in the sale thereof . . . ”

*National Employment Service Act.*

“To provide for the establishment of a national employment system and for cooperation with the States in the promotion of such system . . . ”

*Act Authorizing R.F.C. Aid to Insurance Companies and Regulating R.F.C. Loans.*

“To authorize the Reconstruction Finance Corporation to subscribe for preferred stock and purchase the capital notes of insurance companies . . . ”

*Home Owners' Loan Act of 1933.*

“To provide emergency relief with respect to home mortgage indebtedness . . . and for other purposes.”

*Banking Act of 1933.*

“To provide for the safer and more effective use of the assets of banks, to regulate inter-bank control, to prevent the undue diversion of funds into speculative operations . . . ”

*National Industrial Recovery Act.*

“To encourage national industrial recovery, to foster fair competition, and to provide for the construction of certain useful public works . . . ”

*Emergency Railroad Transportation Act.*

“To relieve the existing national emergency in relation to interstate railroad transportation . . . ”

*Farm Credit Act of 1933.*

“To provide for organizations within the Farm Credit Administration to make loans for the production and marketing of agricultural products . . . to provide a market for obligations of the United States, and for other purposes.”

*Independent Offices Appropriation Act, 1934.*

*Resolution Repealing Gold Clause (Pub. Res. No. 10).*

It is interesting to note in connection with the first piece of recovery legislation, the Emergency Banking Act, that the statutory authority was derived from Sec. 5 (b) of the Act of October 6, 1917 (40 Stat. E.L. 411) as amended:

“During the time of war or during any other period of national emergency declared by the President, the President may, through any agency that he may designate, or otherwise, investigate, regulate, or prohibit,

under such rules and regulations as he may prescribe, by means of licenses or otherwise, any transactions in foreign exchange, transfers of credit between or payments by banking institutions as defined by the President . . . ”

With the exception of the Emergency Banking Act, probably the most outstanding of the recovery enactments are:

- The Agricultural Adjustment Administration
- The Federal Emergency Relief Administration
- The National Industrial Recovery Act, and
- The Tennessee Valley Authority.

The principal objective of the Agricultural Adjustment Administration is to restore to “pre-war parity” agricultural purchasing power. The efforts to do this have included the production-adjustment and marketing-agreement features and processing tax procedure.

In order to restrict production and bring it into a proper relation to demand, the Act authorizes rental payments to farmers for land which they allow to remain uncultivated. The marketing agreements take on the form of certain trade practices among processors and distributors of farm products. The Secretary of Agriculture may offer “benefit” payments for reducing the market volume of farm commodities. The processing tax is devised to reduce competitive market advantage and through its operation a sort of revolving fund is created in the United States Treasury which, in turn, can be devoted to “rental” and “benefit” payments as provided for by the Act. Other features of the Act provide the “cotton-option” plan, a wheat program arrived at through international agreement, and an emergency hog-marketing program. In short, the organization is designed to administer all matters pertaining to the economic restoration of the farmer.

Reports on the activities of the Administration appear from time to time in its various publications. The organization as a whole gives some appearance of being unwieldy. Judgment as to whether this measure is one of building from the ground up or from the top down will have to be reserved until the national economic pattern as a whole has been restored to “parity.”

The subsidizing of agriculture as an industry has an important relation to the national defense. Theoretically, if this relief measure should restore a pre-war supply-demand equilibrium of agricultural products, on the basis of restricted

production, the surplus of farm labor and lands might eventually become absorbed into some other phase of the national economic scheme. Would the agricultural expansion necessary to a nation at war thereby become a major problem?

The extensive socialization which has taken place under the Federal Emergency Relief Administration presents a strange contrast to the psychological resistance to so-called "regimentation." The word regimentation bears the implication of loss of personal freedom. The right of personal freedom is basic in our Constitution and the ideal persists though freedom itself has, in fact, had to be subordinated to immediate considerations of food and shelter. To many who have relinquished its full prerogatives they will never be regained; hence, a compromise which will compel many to forego a satisfactory realization of the ideal is indicated.

The field of relief alone has caused a tremendous shift in occupational classification. Personnel for relief work itself has been recruited from every available reservoir. The government has even undertaken to train workers in the specialized branches of relief administration. Then, too, centers of population have shifted with public works projects. Many of these will become permanent. Segments of population have been shifted to effect a more equitable distribution of relief; industries have moved and left communities to find new means of livelihood. This latter becomes a "relief" project in the newer sense of economic readjustment in that an extensive vocational program is indicated.

As noted above, it is possible that work habits will never be restored to a substantial fraction of persons not yet old. With this loss of habit comes a loss of discipline. In war all these changes will be considerations of man power and supplies.

If the social program can be continued until really constructive work can be done, many economically dissociated groups may again be incorporated into society where they may again be identified with individual economic freedom.

In a recent article by Dean Wallace B. Donham (<sup>(4)</sup>) he says:

"Our party system has lost its capacity for responsible government: Minority pressure groups develop dangerously. The quality of men in public life is sadly

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<sup>(4)</sup> Donham, Wallace B.

reduced by the spoils system, the direct primary, and the heterogeneous nature of our population. Our national cabinet is a conglomeration of department heads rather than a group which determines general policies.

These difficulties were serious under simpler conditions; but now, as the state must take on new burdens, the necessity for better organization is great. There must be clear recognition of the difference between thinking and acting, between determining policies and carrying them out. A planning board or council, not administering but constantly studying policies, is essential. The activities of such a board must be integrated with those of the President and Congress. Hard-headed practical thinking is no less important than political idealism. Planning can rise no higher than the society from which it springs."

If this ideal of organization should be realized, the War Department representation should be by an officer of the Army. Once again the instrument for the defense of the nation could have a perspective on national economy and be able to advise the industry, commerce, labor, agriculture, and other existing agencies concerning the effective utilization of proper proportions of man power and materials in the event of a major emergency with the least possible disruption to the economy of the country.

Probably the most far-reaching of these Acts was the National Industrial Recovery Act which stated that:

"A national emergency productive of widespread unemployment and disorganization of industry, which burdens interstate and foreign commerce, affects the public welfare, and undermines the standards of living of the American people, is hereby declared to exist."

In short, this Act declares the existence of a national emergency, enunciates an industrial policy, places the responsibility for its execution upon the President and invests him with the necessary authority to administer its provisions.

The outstanding feature of industrial regulation has been the codes of fair competition.

These codes are set up under Title I of the Act and in general the following provisions apply to all industries:

1. Purpose.
2. Definition.

3. Hours.
4. Wages.
5. General Labor Provisions (Child Labor, etc.)
6. Administration of codes.
7. Unfair trade practices,  
    Publicity of prices,  
    Selling below cost, etc.

Other provisions are stated as they apply to specific industries.

The purpose and provisions of these codes lend themselves naturally to labor influences, and the pressure exerted by labor on industrial organizations under the famous Section 7 (a) of the N.R.A. is one of the outstanding results of the "recovery" program. (14)

It is believed by many that labor will not relinquish willingly its newly gained power should a war emergency again occur. It is conceivable that the ratio of skilled labor will have increased due to the conditions of unemployment which so long existed and also because of limitation put upon installation of new equipment, restricted production, and fewer hours of work per week. The operations of labor at the Weirton Steel Company, Weirton, Pennsylvania, The Kohler Manufacturing Company, Sheboygan, Wisconsin, and the Atlantic and Pacific Company, Cleveland, Ohio, are cases in point.

The influence of labor attitude, hours per week of work, the restraint that has been imposed upon industry in the matter of installation of new equipment, and the many ramifications incident to the dicta set forth in the N.R.A. codes, and last but not least the psychology of that segment of the people who have lost the habits of thought incident to work and concentration of effort, are all factors of importance to students of national defense.

In an article on industrial regulation in France in the seventeenth century, Usher relates the following:

"This passion for minute regulation appeared in every part of France and in every section of the industrial field. No detail was too small to escape the attention of the inspectors. Quality became an end in itself, regardless of all circumstances of use.

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(14) National Industrial Conference Board, Inc.

Industrialists were involved in continual contest with the government. It was only with greatest difficulty that modifications of old processes could be introduced and new industries encountered serious resistance.

The codes stood in the way of economy in the use of raw material or the substitution of cheaper for dearer material. Competition with the products of foreign industry became very difficult.

The mediocrity of the beaucratic mind had emphasized all the dangers of state interference." (")

It has been shown that the economics of the recovery program are concerned not only with relieving unemployment, raising wages, and rehabilitating industry, but are deeply involved in a redistribution of wealth and a socialization process.

The Act establishing the Tennessee Valley Authority indicates in its preamble that it looks toward a permanent social and industrial change. It is likewise the only Act which states in its preamble that it is "to provide for the national defense." The project is so vast that very little discussion can be given to it here. The liquidation of the government's investment at Muscle Shoals in power and nitrates is only part of this tremendous scheme. The hydro-electric development which will bring about a wide distribution of electric power with reduction in rates will, at the same time, develop the power resources for war. A joint relationship between industry and agriculture is contemplated—cheaper fertilizer for the farmer and home market for agricultural products is visualized. New industries are foreseen in the development of forest products in the area, lumber, ties, poles, fiber, and the like, and the related industries of furniture making, wood carving, etc.

The social phase seeks a flexibility of the economic pattern which will lend itself to new and interesting callings—a redistribution of productive effort.

In a recent article the Chairman (") of the T.V.A. states:

"The Tennessee Valley Authority is but a great laboratory for the nation. What can be done there can be done for the rest of America."

While much "emergency" legislation has been enacted subsequent to June 30, 1933, it is not considered necessary

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(") Usher, A.P.

(") Morgan, Arthur E.

to discuss this in detail. The pattern was set in that first Extraordinary Session of Congress beginning 9 March, 1933. The following list shows the recovery organizations existing at the close of the year 1934:

- AAA—Agricultural Adjustment Administration.
- CCC—Commodity Credit Corporation.
- ECW—Emergency Conservation Work.
- EHFA—Electric Home and Farm Authority.
- E-IB—Export-Import Banks.
- FACA—Federal Alcohol Control Administration.
- FCA—Farm Credit Administration.
- FCC—Federal Communications Commission.
- FC of T—Federal Coordinator of Transportation.
- FDIC—Federal Deposit Insurance Corporation.
- FERA—Federal Emergency Relief Administration.
- FHA—Federal Housing Administration.
- FHLBS—Federal Home Loan Bank System.
- FS and EC—Federal Securities and Exchange Commission.
- FSHC—Federal Subsistence Homesteads Corporation.
- FSRC—Federal Surplus Relief Corporation.
- HOLC—Home Owners Loan Corporation.
- IEC—Industrial Emergency Council.
- NEC—National Emergency Council.
- NIRA—National Industrial Recovery Act.
- NIRB—National Industrial Recovery Board.
- NLRB—National Labor Relations Board.
- NRA—National Recovery Administration.
- PA—Petroleum Administration.
- PWA—Federal Emergency Administration of Public Works.
- PWEHC—Public Works Emergency Housing Corporation.
- RFC—Reconstruction Finance Corporation.
- SAPFT—Special Adviser to the President on Foreign Trade.
- SES—Soil Erosion Service.
- TVA—Tennessee Valley Authority.
- TVACI—Tennessee Valley Associated Cooperatives, Inc.
- USIS—United States Information Service.

Although practically every department in the existing set-up of the Federal Government has a planning organization, the emergency agencies have the announced purpose of dealing with the problems of recovery. The whole problem of recovery is, in its final interpretations, inextricably connected with economic planning. The administration has committed itself to the principle of economic regulation, and executive orders have given cognizance to the concept of economic planning. There is little coordination of activity, however, except in the person of the President himself.

The National Emergency Council (<sup>18</sup>) was created by Executive Order, November 17, 1933, for the purpose of coordinating the work of the governmental agencies established under the recovery legislation. Its functions were stated to be:

- (a) To provide for the orderly presentation of business to the President;
- (b) To coordinate interagency problems of organization and activities of the Federal agencies;
- (c) To coordinate and make more efficient and productive the work of the field agencies of the government;
- (d) To cooperate with any federal agency in performing such activities as the President may direct, and
- (e) To serve in an advisory capacity to the President and the Executive Director of the National Emergency Council.

The Executive Council was established by Executive Order on 11 July, 1933, and the Industrial Emergency Committee on 30 June, 1934. The Executive Council and the functions and duties of the Industrial Emergency Committee were merged with the National Emergency Council on October 29, 1934. This coordinating agency has been given representation in all the States and in the Territories of Hawaii and Alaska.

In the functioning of this Council there lies a striking parallel to the Council of National Defense and its subsidiary bodies from 1916-1918. Only through trial and error was it finally conceived, in the formation of the War Industries Board, that the effective use of the nation's resources was to be achieved only through a superorganization, the head of which only was responsible to the President.

(<sup>18</sup>) United States Government Manual. Issued by the National Emergency Council.

Much study and analysis have been directed toward the soundness and wisdom of certain procedure evolved as well as the constitutionality of the whole program. These questions can be answered only by time. Public acceptance may be a means of establishing validity in many instances; in others, Supreme Court action will undoubtedly decide their status.

There was beyond a doubt a feeling of intense patriotism on the part of the specialists who were being called upon by the Chief Executive in a time of national emergency. The absence of a plan, however, made for dissipation of effort in that one group of views could be opposed to another and no one but the President, himself, could say with authority what should be done. There was a definite mission and only haphazard policies for carrying out that mission. There resulted much internal dissension which militated against the direct operation of emergency policies. Also the pressure of political interest has not been absent in this period when a united front was so greatly necessary. In approaching the ideal of a redistribution of economic benefits no orderly procedure was obtained. There has been manipulation of privilege and the pressure of various factions opposed one to another. Probably administrative chaos has been inevitable since no scheme for control either by a superagency or through the medium of directly delegated responsibilities previously had been included in national policies.

The following paragraph from Mr. Baruch's report on "American Industry in the World War" (\*) properly illustrates the often-repeated adage that history repeats itself. These lines might well appear in a future report entitled "American Industry under the New Deal."

"This report is a record not alone of new methods of government control over business; it is also a record of many new practices on the part of business itself."

"With purpose always defined, but method to be discovered by a process of trial and error . . . the Board finally developed a scheme of positive 'control' of the major portion of the industrial fabric."

#### SUMMARY

The similarity of purposes, means of accomplishment and agencies of execution common to war economy and to

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(\*) Baruch, Bernard M.

peace economy would suggest similarity in approaching the respective problems of national defense and of social and economic welfare.

Though it is admitted that the philosophy underlying a planned peace economy differs from that basis to a planned war economy, yet the approach is similar. There must be aims, policies, and machinery for each. It is contended that one planning group and one coordinating group could effectively operate in either economy. A plan must exist.

There are at present definite trends toward coordination of the emergency agencies themselves and a further development of policies which will come in more closely to established order.

Irrespective of the present phase, a summation of the principles upon which emphasis should be placed in developing the national plan for economic regulation may be stated as follows: (<sup>20</sup>)

- (a) A clearly defined general mission.
- (b) The ability to interpret the general mission as a definite directive.
- (c) The knowledge and power to carry out the directive.
- (d) The adoption of sound control measures.
- (e) Organization for putting control measures into effect.
- (f) Selected personnel for administration.
- (g) The proper correlation of plans and operations to contemporaneous social and economic conditions.

The grafting on of these peace-time emergency groups to the machinery of government introduces a new element into the theory of economic regulation for war. With this in view there should be included, in the war economic planning effort, a consideration of the functions of these peace-time agencies and their possible influence upon industrial regulation during war.

Perhaps it is too early in our national development to conceive a plan which, while suitable for economic regulation in peace time, will lend itself to adaptation to economic regulation for war. There would appear to be the thought and mechanism which could be directed toward that end—the ideal will probably not soon be realized.

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(<sup>20</sup>) Bogman, J.H.B., *Economic Planning and National Defense*.

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**Section 2**  
**ABSTRACTS OF FOREIGN-LANGUAGE ARTICLES**

This section contains abstracts of important articles from foreign military periodicals; the remaining articles for each magazine are listed in Section 4.

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**PROTECTION OF THE LINE OF COMMUNICATIONS**

By Major G.J. Braun, Infantry

This article presents a picture of the various steps necessary in the protection of the line of communications of large units. In open warfare situations and with an enemy possessing modern military facilities such as aviation, mechanized forces, and cavalry, lines of communications will be continually in danger. Let us visualize the dire results to the front lines should their supply of ammunition and food be severed—it would quickly lead to a surrender of the combatant forces. This threat has not been given sufficient consideration in the past.

Heretofore, the services in the line of communications have not been prepared from the morale, organizational, or technical sense for their tasks of defense against an attack threat in a modern war. As a rule the first consideration must be given to the selection of terrain with reference to its communication possibilities. Based on this terrain study, the defense of the area is prepared.

In an attack against the lines of communications, aviation operations may include surprise bombing (using the normal fragmentation and chemical bombs) and the employment of attack aviation armed with machine guns. The objectives of the air attack would generally be sensitive points such as

Abstracted from *Militär-Wochenblatt*, 11 September 1935. "Der Schutz der rückwärtigen Dienste," by Lieut. Colonel Giesecke.

railroad stations, railroad yards, bridges, and similar installations. When the opportunity arises, headquarters and troop columns might be appropriate objects of attack.

The defensive measures which must be taken to protect the rear areas are:

(1) The establishment of an observation and alarm service.  
(2) The arrangement of a special communications net for the defense.

(3) An alert and aggressive defense in the form of units with special weapons (antiaircraft, antitank, and machine guns); infantry units (guards for the service of supplies); engineer units (for the preparation of the terrain and mine fields and obstacles).

(4) Troop (gas detecting and degassing units) for defense against chemical agents.

(5) Utilization of the terrain to protect against observation (aviation) and to make the approach of mechanized units and cavalry more difficult.

For the defense of the supply services the line of communications troops themselves must be used, calling on outside help only when these units are inadequate.

The observation and alarm service is for the protection against surprise by aviation or mechanized forces. An efficient observation system should be established to observe the horizon for aircraft and such terrain features over which mechanized forces could approach. On the march, small patrols must be continually on the alert to warn the columns. Similar defense must be established at assembly points of supply units such as railroad stations, railhead and dumps, and billeting areas. This observation and alarm service can give its maximum service only when it includes an excellent communication wire net (both telephone and telegraph), as well as visual and sound signals, and is connected to the defensive system by similar means.

A passive defense only can be made by the rear-area troops against surprise attacks by aircraft, mechanized forces, or large cavalry forces. The general defense of the line of communications must be under central control in order to effectively employ the many specially equipped and separated units of the defense. Special motorized units with machine guns, antiaircraft guns, and light field pieces, must be held in readiness for rapid movement to any critical area. The

personnel of the supply columns must have defensive weapons available in the column to assist in the defense of the columns.

The infantry contingent of line-of-communications troops must be prepared to send units of about the strength of a battalion to safeguard sectors definitely threatened and to protect important objectives such as bridges, road intersections, etc. As a defense against chemicals, special troops technically trained to detect poison gas and equipped for degassing of the affected areas should be assigned to the defense. All personnel of the line of communications must be on the alert at all times against surprise air attacks and mechanized attacks. Although the line-of-communications troops are scattered and of many different branches, they must be systematically organized as a team for the defense. The line-of-communications troops must be trained in: (a) observation and alarm service; (b) active defense; (c) passive defense.

For active defense, preparation must be made as follows:

(1) Allotment of means to supply columns for temporary protection against cavalry raids, low-flying aircraft, etc.

(2) Specially alerted security forces from line-of-communications troops, such as antiaircraft and antitank units, should be concentrated at vital points prepared to move in any direction to carry out their missions. The efficiency of this requires a smooth functioning communication service. The commander of the line of communications can perform this duty best since he is vitally interested in, and responsible for, the functioning of the defense. The function of the security troops is not to seek offensive action but to ward off such action. They must maintain air reconnaissance of adjacent roads. The best defense of motorized supply columns is their speed; animal-drawn vehicles can leave the roads, as far as the terrain permits, for protection against aviation. Part of the training of columns against air attacks, in open spaces, should be in taking, with maximum speed even when loaded, a formation less vulnerable to attack. If they cannot leave the road they must increase or decrease their speeds to gain greater distances between vehicles, thereby diminishing the target. Camouflage also must be used. This training must start during peace time and not left to be improvised when the emergency occurs.

### ARMORED CAR RECONNAISSANCE DETACHMENT

By Major G.J. Braun, Infantry

There are three reconnaissance detachments, viz., light, heavy, and mixed. The light reconnaissance detachment consists of machine gun trucks and radio trucks, having a light armor. The heavy reconnaissance detachment is only equipped with heavy armored cars, while the mixed reconnaissance detachments consist of armored cars and machine gun trucks. Generally reconnaissance detachments are organized as follows:

The light detachments have 2 or 4 machine gun trucks.

The heavy detachments have 2 or 4 heavy armored cars.

The mixed detachments have 2 armored cars and 2 or 4 machine gun trucks.

Every two vehicles constitutes a section (half platoon).

It is possible, of course, to have light, heavy, or mixed detachments of other strengths.

The modern 6-wheel armored cars are equipped with one 20-mm. machine gun and one light machine gun set in the turret, possessing 360° field of fire, and armor which is proof against armor-piercing ammunition. The detachment commander's car is equipped with radio. The lightly armored machine gun trucks are either equipped with radio or a light machine gun which can be utilized for antiaircraft firing. The armor is proof against armor-piercing ammunition fired beyond 100 yards. The cruising radius of these vehicles can be assumed to be about 125 miles. The speed of the reconnaissance detachment is about 25 miles per hour, although individual vehicles can reach 45 miles per hour.

The range of the radio equipment for armored cars can be assumed to be about as follows: From armored car to armored car (both moving), about 9 to 14 miles; from armored car to light radio station, 25 miles; from machine gun truck to machine gun truck (both moving), 16 to 19 miles; from machine gun truck to machine gun truck at a halt, about 32 miles.

Upon receipt of orders the duties of the reconnaissance detachment commander are as follows: (1) Map study to locate dangerous positions, woods, defiles, bridges, swamps, so as not to run into an ambush. Estimate probable location

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Abstracted from *Militär-Wochenblatt*, 11 July 1935. "Der Panzerkraftwagen-(Pzkw.) Spähtrupp."

of enemy. (2) His orders to his command must include information of the enemy, own situation, mission, route after the first jump, order of march, line of signal communication, type of communication and support.

He must lead his detachment in a tactically sound manner and observe the terrain. He must be in constant communication with his troops.

Duties of the armored car commander: En route he directs the movements of his vehicle. He is responsible for contact with the detachment commander. He observes and checks map and terrain. He is authorized to open fire only in case of a surprise hostile meeting engagement.

The missions of reconnaissance detachments are:

- (1) Reconnaissance.
- (2) Observation of the enemy.
- (3) Surprise fire.
- (4) Security for the marching and resting troops.

#### RECONNAISSANCE

##### *Conduct of the Reconnaissance Detachment During Advance*

Fundamentally this is the same as for cavalry reconnaissance detachments: (1) See much without being seen. (2) Reconnoiter without becoming engaged in a fire fight.

To comply with this the advance must be planned so that the cars move from observation point to observation point and from cover to cover. The detachment commander must not engage in fire fight except upon a sudden meeting engagement or to prevent hostile reconnaissance from breaking through the friendly screen or when necessary to carry out a mission.

The advance of his detachment should be divided into three phases: first, that in which enemy contact is improbable; second, that in which enemy contact is possible, and in which shorter jumps forward occur; and third, that in which hostile contact is certain, necessitating cautious moves using side roads to observe the main road. During this phase jumps become shorter, mutual protection is assumed, and rate of speed diminished. This manner of approach is better than moving head on into the enemy and being shot up.

The commander's vehicle should be second in formation, the leading vehicle being relieved from time to time as is done in the cavalry. In mixed detachments it is best that a heavy armored car be in the lead, due to the danger involved.

The rear vehicle must observe to the rear and when the detachment goes through a defile it should remain at the far end to keep it free in case the detachment runs into an ambush at the other end.

*Conduct at Barriers or Obstacles*

Differentiation must be made as to unoccupied, lightly, and heavily garrisoned barriers. In hostile country the natives help construct barriers, especially when telephone warnings are sent ahead. Every evasion of a barrier consumes valuable time. It is useless to make a house to house search in order to capture some inhabitants or the magistrate of the town, therefore it would be better to burn the village or farm.

Should the detachment run into a barrier it should take cover and reconnoiter either on foot or by vehicle whether or not the barrier is garrisoned. If not garrisoned the car moves forward under the protection of the guns of the other cars. The occupants of the leading car get out and remove the barrier obstacle.

If the barrier is manned by hostile forces these must be brushed aside and the barrier removed. If the hostile force is too strong, the barrier must be avoided and word sent back to that effect.

*Conduct at a Sudden Meeting Engagement*

At a meeting of two armored cars when the hostile reconnaissance has not been identified, the car should immediately halt and signal to the rear. If time is available it should move to the nearest cover and permit the hostile car to come nearer before firing. In other words, it is halt—fire—signal to rear. The side opening fire first has the advantage and the side registering the first hit usually is the victor.

**OBSERVATION OF THE ENEMY**

This mission can only be accomplished by continuous contact with the enemy.

The reconnaissance detachment must follow the enemy keeping under cover. The commander of the friendly troops must be constantly informed. Any halt by the enemy must be verified.

**SURPRISE FIRE**

The basic principle of a surprise fire is to suddenly cover the enemy with fire from every available weapon inflicting

such casualties as to delay his advance. This can be accomplished either while in motion, or from a halt.

When in motion it is best to select terrain where the simultaneous fire of all cars or fire in rapid succession can be brought to bear on the enemy. The most effective method is an attack from the front and flank.

When at a halt it is best to strike from ambush in villages, woods, or from behind covered hills. Should the terrain be unsuitable for fire from the vehicles, then the machine guns can be removed to a better firing location.

It is essential that the terrain selected for the ambush be carefully reconnoitered by the detachment commander. His orders to the car commanders must cover: (a) information of the enemy, (b) his own plan and necessary details, (c) target distribution or designation, (d) time of opening fire, whether by whistle signal or fire from the commander's machine gun or location of hostile vehicles on terrain, (e) when to cease fire, line of withdrawal and assembly point.

#### SECURITY

For marching troops: Reconnaissance detachments can be utilized as security in front of the point of the advance guard, in rear of the rear guard, or on the flanks. For example, if used in rear of the rear guard it moves in successive jumps, remaining on the road of march and keeping contact and communication with the marching troops. If used on the flanks they will take up cover positions with excellent field of fire, barricade side roads out far enough to prevent hostile armored cars from firing on the marching troops. Communications must be maintained and the detachments must automatically move forward, parallel to the line of march, to cover the marching column.

For resting troops: Reconnaissance detachment will be used in exceptional cases only, as security for resting troops. This is done by (a) constructing barriers, (b) by setting up camouflaged machine gun trucks and armored cars, and (c) by setting up detached machine guns at vital points on the terrain. The barricades must be so constructed that the enemy cannot avoid or encircle them or detect them in advance. They must also be manned so as to take the enemy under fire when he endeavors to remove them.

The detachment commander must report the location of these barricades and provide a sketch thereof.

Every reconnaissance detachment must report the initial contact with the enemy and from then on only the important information. The sight of hostile motorized units must be reported at once.

To send by radio, the detachment moves into cover and protects itself for this period. If time permits, requests can be made for further instructions. For exceptionally important information, one car can be sent back.

The detachment commander usually must use his own judgment and make his own decisions. If compelled to alter the original orders by evading difficult territory, he must report this to his commander.

The best observation is worthless if it is not reported or if it arrives too late.

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#### COMBAT OF TANKS VERSUS TANKS\*

(Conclusion)

By Major G.J. Braun, Infantry

Based on organization and methods of utilization of tank units of foreign armies, the future will see massed tank attacks to force a decision at the point of employment. Tanks will follow each other in waves. The successful hostile defense will depend on the availability of sufficient antitank weapons, and as these are usually limited, on the knowledge of the location and exact time of a massed attack by tanks. Not until this is known can the required antitank weapons be concentrated at the vital position in width and in depth.

The defense can only be successful when the antitank weapons are in position at the time the hostile tank attack occurs, for an antitank weapon is useless when it is being moved into position. It is different with the tank which fights while in motion and which can deliver aimed fire on moving targets.

Therefore the fundamental doctrine of foreign armies that the tank itself is an effective weapon against another tank, is concurred in.

It will be extremely difficult to have sufficient antitank weapons on hand to combat a massed tank attack and since

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\*See RML No. 58, page 62.

Abstracted from *Sanct Christophorus*, June 1935. "Das Gefecht 'Kampfwagen gegen Kampfwagen'."

these attacks are of great speed and mobility the tanks offer only fleeting targets. It is not too much to assume that in the event of a hostile tank breakthrough that the friendly tanks are best suited to halt or defeat such an advance. This assumption places the tanks as a defensive weapon against armies with masses of tanks. These principles are also applicable to smaller units when encountering a larger unit which had been weakened by the fighting in the breakthrough; these smaller units, at an opportune moment, can effectively attack the larger one.

The *Royal Tank Corps Journal* listed a series of principles which are of special interest, being the result of training exercises.

Assumptions for a successful attack are:

- (1) Reconnaissance, to determine the strength, method, and direction of the hostile tank attack.
- (2) An advantageous position from which to launch a successful attack.
- (3) Good marksmanship.
- (4) Clear fire orders.
- (5) Fire distribution to be such that friendly tanks can mutually support each other.

The side which makes best use of the terrain, and brings fire-power to bear at the correct time when by maneuver it compels the opponent to expose a vulnerable side, will be victorious.

The *British Combat Regulations for Tanks* states: Tank combat requires accurate marksmanship from all its tank cannon and machine guns. The unit commander directs the fire, designates the targets, and gives the orders to open fire as well as to cease firing.

The determining factor in an attack on tanks is selection of the combat terrain; next in importance is the rate of speed with which the attack is conducted and the distances and intervals to be maintained between tanks. The appropriate combat formation is a column in which one tank follows behind the other so as not to mask the firing or endanger the other by its firing.

One must differentiate between tank combats, in which friendly tanks attack, giving them the advantage of terrain and time element, and tank combats when friendly troops

are surprised by enemy tanks and are forced to assume the defensive.

A tank attack comes under four headings, viz.:

- (a) Opposing tanks suddenly meet each other.
- (b) Friendly tanks are surprised by hostile tanks.
- (c) Friendly alerted tanks observe an impending hostile tank attack and move to intercept it.
- (d) Friendly tanks are alerted to repel an anticipated hostile tank attack.

(1) When opposing tanks meet each other as they did at Villers-Bretonneux we learn the following:

- (a) The side recognizing the opponent first had the advantage.
- (b) That the first well aimed shot decided the winner.
- (c) The enemy must be attacked at once. Delay affords the opponent the opportunity of escape, or choice of terrain or maneuver for firing position. Every effort must be made to keep on his blind side and at all times offer him the smallest possible target.

(2) When friendly tanks are surprised by hostile tanks, the latter have the initial advantage. The friendly tanks must immediately abandon their initial mission to destroy the hostile tanks which have suddenly become the main objective. Use of speed for evasion of fire effect is essential in order to secure an opportunity to counterattack. Those units having the advantage of cover can fire from stationary positions to assist. If evasion is impossible then well aimed and rapid fire is the best defense. It is best that the fire of several friendly tanks be concentrated on a hostile tank eliminating them piecemeal. The return to the original mission follows the elimination of the hostile tanks.

(3) In situations where the friendly alerted tanks recognize an impending hostile tank attack they must move out to meet it. The best security measures are concealed tanks located in the threatened direction. Only such armored vehicles should be utilized as are equipped with armor-piercing weapons. Observers keep the waiting friendly tanks informed of the approach of the hostile tanks and also carefully observe the terrain over which they must fight.

(4) The most favorable situation is where a hostile tank attack is anticipated and friendly tanks can be alerted and

necessary preparations made. Accurate terrain reconnaissance is made to determine the probable direction of the expected attack and plans can be made to attack him from the flanks and rear. Friendly tanks can be placed in camouflaged positions from which they can suddenly emerge to surprise the hostile tanks and others can fire from their camouflaged positions to support the attack.

It is essential that observers note the strength, formations and direction of hostile tank units so as to avoid premature action which would only hit the advance elements and permit the main force to be warned allowing them time to take precautionary measures.

It is essential that the hostile tanks be met with overwhelming fire from all sides. A decision must be made as to which portion of the enemy is to be attacked first. It may be vital to attack his rear elements first, then hit the advance elements from the rear.

A premature shot may jeopardize the entire action; therefore fire should be rigidly controlled by the commander.

Even though the rear elements are to be attacked first, it may be of great assistance if the command tank is destroyed early in the fight. If successful, this would cripple the attack momentum. Expert gunners should be assigned to this mission.

Should it be impossible for the stationary camouflaged tanks to engage the enemy from their positions, then they should dart out to positions of their own choosing, open fire and disappear again to cover. Even though the tanks often fire from a stationary position, the tank is not primarily an antitank weapon and should always attack while in motion.

There may be situations in which it will be impossible to determine the direction of the hostile attack from the terrain features. In such cases the friendly tanks must take a position of readiness far enough to the rear to be able to move in any direction. Terrain reconnaissance and determination of all possible approaches is essential. Also observation and communication are essential to give sufficient warning of an approaching attack.

It is then necessary that the tank units go to the point of penetration with utmost speed over previously selected ground. It might be necessary to assume a position farther to the rear to permit proper preparation.

### SUMMARY

The combat of tanks versus tanks occurs with such rapidity that a quick decision and execution of same is imperative. It is only under rare circumstances that the desired preparations can be made or that the location of the anticipated attack is definitely known or that the necessary and desired commands can be issued. Only recently known indications can be considered. Also it is just as essential to practice the method of combat against tanks as it is against antitank defenses or artillery.

The following is a summary of the high points in combat of tanks versus tanks:

(1) The side which quickly and energetically attacks has the advantage of an enemy who cautiously approaches.

(2) The first well aimed shot will beget quick success. The shot delivered from a stationary position which is possible only under exceptional circumstances is usually the best aimed. Excellent marksmanship training is essential.

The acknowledgment that the shot delivered from a stationary tank is the better shot, must not convey the impression that firing against hostile tanks is only executed from the stationary position. Every halt made when not under cover represents a weakness because the fighting usually is against numerous hostile tanks. This is evident because as soon as a tank halts to deliver a well aimed shot it becomes an easy target to be destroyed by hostile fire. It is evident then that mobility and versatility are more important.

(3) Maximum use of the terrain is essential to secure the best firing and offer the smallest target to the enemy. This requires excellent manipulation by the driver and teamwork between the driver and the gun crew.

(4) Tanks should be attacked from the rear which usually is their blind side also because attention of the crew usually is directed to the front.

(5) Every effort must be made to obtain superiority by a concentrated fire. It must be remembered that it is possible to destroy a numerically superior tank unit by succeeding in fire superiority on a portion of the enemy and then destroying him piecemeal.

(6) It is also possible to divide the enemy by attacking him from several sides. This is possible if timely information

is available and provided the initial attack on the enemy can be struck from his rear.

(7) Cooperation between tanks of the same unit is essential by mutual fire support.

(8) Opening of fire must be withheld as long as possible because the surprise effect would be lost and also shots fired at long range might not have the desired effect.

The British sources also stress the duties of the platoon and individual tank commanders. They assign the following missions for these:

*Platoon commander:* He must guide the movements of his platoon and command his own tank. He must decide when to attack hostile tanks and when to withdraw from combat. He is responsible for the maintenance of contact and communication with his company commander. Commands should be given by visual signals.

*Tank commanders:* Are responsible for the maintenance of contact and communication with the platoon commander and section leader. He must indicate to his driver how to utilize the terrain and the direction to move and controls the firing of his tank or in the smaller tanks, fires the weapon itself.

It may be impossible to give all the necessary commands, especially by radio, if an enemy suddenly appears. Short fragmentary orders must then be given; then the enemy should be quickly engaged according to previous training. In principle each tank should be self-directed within the range of his unit and command.

Real situations and experience can only be had when ball ammunition is fired. The foregoing statements are for the purpose of dealing with these questions, because in the future tanks will be used against tanks when two nations are so equipped. There has been no attempt to paint a complete picture of such combat.

### DIVISION ARTILLERY IN THE DEFENSE

By Captain M.D. Taylor, Field Artillery  
and  
Captain F.J. Tate, Field Artillery

This article explains the general principles involved in the employment of the artillery in the defense and then illustrates their application to a concrete case. In the latter, the XVIII Corps, consisting of the 35th and 36th Divisions, normal corps troops, the 318th Field Artillery (75-mm. motorized, three battalions), and the 358th Field Artillery (105-mm. gun, motorized, two battalions), is assumed to have the mission of defending the heights south of the Sambre between the Seure and the Hautes for a period of three days (23-25 August, inclusive). At 6:00 PM, 21 August, the divisions are at short march south of the line to be defended. At this hour the corps commander receives his defensive mission from army at the corps command post. The scenario of subsequent events was as follows:

7:30 PM—21 August

The corps commander convenes his division commanders and their principal staff officers at the corps command post. His directive includes the following: Corps mission, corps zone of action, probable direction of the enemy attacks, main line of resistance, outpost line of resistance, mission of the outpost, disposition of divisions abreast, responsibility for lateral liaison, corps reserve (one regiment), attachments of artillery to divisions (one battalion of the 318th Field Artillery to the 35th Division, and two battalions to the 36th Division), instructions to the artillery.

These instructions to the artillery include the following:

*Mission.*—(a) The artillery with the corps will be able to support the defense throughout the entire depth of the defensive position.

(b) It will delay the approach of the enemy south of the line: Mons—Charleroi (9 miles from the main line of resistance) and will then interfere with his deployment and preparation for attack.

*Corps artillery:* Mission, organization for combat, X-X line, allotment of munitions, use of the corps balloon by the corps artillery.

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Abstracted from *Revue d'Artillerie*, April, May, June, July 1935.  
“L’artillerie divisionnaire dans le combat défensif,” by Lieutenant-Colonel Moustey.

From this point we are concerned only with the operations of the 36th Division.

*8:30 PM 21 August—Daylight 23 August*

The commanding general, 36th Division, does the following:

- (1) Makes his decision.
- (2) Issues his reconnaissance orders. The appropriate commanders execute these reconnaissances and report the results. Based on these reports, the division staff issues the formal field order for the defense.

In connection with the artillery elements of the decision the author makes an abstract study of artillery missions in general. To give a mission to the artillery is to indicate the nature of its action during each phase of the battle. There are three possible actions:

- (1) Distant fires.
- (2) Counterbattery.
- (3) Close-in fires.

No single disposition of the artillery favors equally all three of these actions. The mission assigned to the artillery must indicate clearly their relative importance. In the present case the mission of the artillery (corps being charged with counterbattery) as given by the division commander is expressed as follows:

"The division artillery will support the defense throughout the defensive position with all available means.

"Without displacement of matériel it will be able to fire in advance of the line—with one battalion of 75-mm. guns and one of 155-mm. howitzers.

*"Missions:*

One battalion of 75-mm. guns to support the left regiment.

Three battalions of 75-mm. guns to support the center regiment.

One battalion of 75-mm. guns to support the right regiment.

The 155-mm. howitzer to be in general support with two battalions able to mass in the area: Gozee—Le Bout-la-haut.

"The artillery commander to make plans:

- (1) For three battalions of 75-mm. guns to intervene in the region: Marbaix—Ham-sur-Heure.
- (2) For three battalions of 75-mm. guns to fire south of the Thuin.

"*Reconnaissance instructions:* Omitted.

"*Emplacement:* To be made during night of 22-23 August. To be completed by 5:00 AM."

The division commander is now concerned with the organization of the system of artillery fires. Two factors govern this organization:

- (1) A battalion of artillery on the defensive can cover 600 yards with a standing barrage or can neutralize an area of from 7 to 12 acres.
- (2) A battalion in position can maneuver its fire in a sector about  $30^{\circ}$  on either side of a given base line.

Basing his dispositions on these factors, the commander of the division artillery must assure the timely delivery of fire on all the different targets which may appear in the course of the combat. When his initial dispositions no longer suffice to fulfill this mission, he must be prepared to displace his guns according to a prearranged plan.

In determining the organization for combat, the question arises as to what artillery to put in direct support of the infantry, what artillery to retain in general support. The following principles will govern the decision in a particular case:

- (1) The 75-mm. gun is the weapon most appropriate for direct support missions. Heavier calibers can not fire close to the infantry with safety to the latter. Also they require a considerable time to shift targets and maneuver their fires.
- (2) A battalion of 75-mm. guns is the absolute minimum of artillery to put in direct support of a regiment of infantry.

Thus, in the normal case the 155-mm. howitzers will be in general support with the 75-mm. guns in direct support. Doubt will frequently arise, however, when the division has been given some reinforcing 75-mm. gun battalions. In this case, the division commander will often wish to keep some of the 75-mm. guns in general support, especially if the situation is uncertain.

The physical location of the batteries will be governed by the mission assigned them. As this will generally be the defense of the main line of resistance, the location of the guns should be as far as possible in rear of the main line of resistance in order to be able to fire within the defensive position, to obtain a wide lateral field of fire, and to secure maximum protection for the matériel. However, there is a limit to this depth. The 75-mm. guns cannot fire effectively if farther back than 6,000 yards, the 155-mm. howitzer if farther back than 8,000 yards. Also, if the advance of the enemy is to be interdicted and our own outposts protected, some artillery must be in forward locations.

These considerations have led in the past to artillery orders which prescribe that a certain fraction of the artillery be able to fire beyond a certain line, that all be able to support the main line of resistance, that another fraction be able to support the regimental reserve line. This was the fashion for several years. It is to be hoped that this effort to solve a tactical problem arithmetically has ceased. These fractions with various numerators and denominators do not consider the composition of artillery units. If rigorously complied with, they would require the breaking up of battalions and even of batteries. They also impose an extreme echelonment of batteries within battalions which makes control difficult and forces a rearward displacement of exposed batteries at the critical part of the combat.

We conclude that whenever the echelonment of fires requires an echelonment of batteries so that rearward displacements become necessary, we must:

- (1) Prescribe a strict minimum of batteries to furnish distant fires.
- (2) Prescribe their time of withdrawal.
- (3) Have rear positions ready and organized for them.

It is often considered normal to obtain an echelonment of artillery in depth by batteries within battalions. This will be necessary when a single battalion is in direct support of an infantry regiment. However, it should not be taken as a rule. A battalion of artillery cannot be effectively controlled in combat if the batteries are over 800 yards apart. Hence it is better to seek depth by echeloning battalions within groupments, or by echelonment of groupments (with general support groupments believed to be those in direct support).

With these general principles in mind, the commander of the division artillery draws up his reconnaissance order which includes:

- (1) The decision of the division commander.
- (2) The organization of the artillery for combat.
- (3) Zones of action.
- (4) Plan of observation.
- (5) Manner of executing reconnaissance.
- (6) Time of occupation of position.

The foregoing order was published at 11:30 PM, 21 August. The following morning at daylight, the division commander, accompanied by his artillery commander (among others), made a detailed reconnaissance of the position to be defended. At the end of the reconnaissance the division commander announced the main line of resistance. His artilleryman was then ready to draw up the order for the artillery.

The artillery paragraph of the division order for the defense is interesting in that it is the antithesis of our own artillery paragraphs, insofar as details are concerned.

The missions of the artillery, that is the actions in which it will be called upon to participate during the different phases of the defense, can be grouped under the following:

- (1) Distant fires.
- (2) Counterbattery.
- (3) Close-in fires.

In view of the organization for and conduct of these actions, or fire missions, the division artillery is subdivided into two echelons: the division and regimental. In each of these two tactical echelons, the conduct of the fire mission consists of:

- (1) Prescriptions by the commander, clearly defining the objectives, in width and depth, and the plan of fires: duration, intensity, rate of fire, and time of opening fire.
- (2) Timely preparations by the artillerymen: reconnaissance, movement of the artillery, calculation of data, and all other preparations necessary for the proper conduct of the fires, in accordance with prescribed plans.

### DISTANT FIRES

These are the initial fires of the defense: division artillery units charged with these missions will fire on call from the corps artillery commander, if the missions are within the zone of the corps artillery. Hence, it reinforces the fires of the corps artillery. If these missions are within the zone of responsibility of the division, fire missions will be executed on orders from the division.

In either of the cases just mentioned, the following are possible objectives:

#### Enemy formations:

- (a) On the march.
- (b) Partially deployed columns.

These will include infantry elements effecting movements in preparation for the attack; enemy batteries in motion or moving into positions, truck columns, etc.

These objectives will be numerous and will vary in importance between wide limits. In moving situations, it will be undesirable, even if it were possible to take all these targets under fire.

To fire on all these targets would result in a consumption of ammunition altogether out of proportion to results attained. Maximum means must be available for the immediate defense of the position. This is a responsibility of the commander, which he acquires partly by limiting the zones of action of the division and corps artillery and also by determining the amount of division artillery strictly necessary for participation in distant fire actions.

### COUNTERBATTERY

Even though this is a normal function of the corps artillery, the importance of this mission in the division artillery scheme of fires should be noted. An enemy who is planning to attack a position, which has been selected and organized in advance, should assemble sufficient artillery to insure him a superiority of 3 to 1, and even as much as 8 to 1, in corps artillery. How then will it be possible for the defender to cause slight damage, if any, to this mass of the attacker's artillery?

It will be normal for the division artillery to reinforce the fires of the corps artillery either with 155-mm. howitzers, or 75-mm. guns which are very effective against unprotected batteries, especially batteries moving into position.

Evidently, when the attacker approaches our position, and when the missions appear which are more urgent to the immediate defense, counterbattery by the division artillery should cease.

The following principles should govern in the execution of missions beyond the zone of action of the division artillery:

- (1) Few, if any, geographic targets.
- (2) Short, violent fires, effectively controlled.
- (3) Opening of fire commencing at a line previously fixed by the commander or sometimes on orders of the commander.

Above all, aerial observation, either balloon or airplane, is indispensable, and the commander who orders these distant missions should first see that these means are available.

The air service must receive definite instructions on its method of participation in this action, in sufficient time, and in such manner as to permit the establishment of a definite understanding between it and the artillery.

#### CLOSE-IN FIRES

Fires employed in immediate support of the defensive position, either along the outpost line or main defensive position, fall into three categories, as follows:

- (1) Observed fires.
- (2) Prepared concentrations.
- (3) Systematic fires.

#### *Observed Fires*

Under this heading are listed all fires beginning with the zone in front of the outposts up to the area in rear of the regimental reserve line, which can be fired by observers, in the majority of cases by terrestrial observers, and in other cases by aerial observers.

The division commander intervenes in these fires only by prescribing the time for opening of fire, because the opening of these fires marks the entry into action of the division, for which its commander alone is responsible.

Most of the distant fire missions might be included in this category of fires; however, complete accomplishment of observed fires in immediate support can be insured only by commencing when the enemy crosses a line visible from the main position, and if possible, from the outpost line.

Observed fires, commencing with the moment they are authorized, can be fired on the initiative of the observer, and should be interrupted only when the enemy reaches the zone of protective fires (demands for barrages by infantry), or when these units are required to participate in prepared concentrations or counter-preparations.

The artillery attains its greatest fire-power and flexibility in the execution of these missions. The combat front assigned to a battalion should not be reduced to less than 600 yards. A battalion can support a front of 1,200 to 1,500 yards under favorable conditions. These fires are observed throughout, are of definite effectiveness, and can be lifted when the desired effect has been attained.

In 1914 these were the only fires employed. Their effectiveness, and the terror created in the enemy ranks, are well known. There is no reason to believe that they would be less effective today—it is even possible that they might be more effective—since today we can actually fire battalion concentrations, replacing the battery concentrations, which was the normal method in 1914.

Observed fires require good observation, excellent communications between observation posts and batteries. Without these, observed fires lose their desired *instantaneousness*. Our present means of communications, especially in the defensive, should assure us confidence on this point, because if the telephone fails us, we still have the radio.

#### *Prepared Concentrations*

Certain terrain areas might become more important, more dangerous to the defense, due to the fact that if the enemy succeeds in occupying them, he can reorganize to renew the advance. These areas might be in front of the position or within it.

These areas or zones should be neutralized opportunely by artillery fire of sufficient strength.

To insure that these neutralization fires will be effective, it is necessary to:

- (1) Prepare them in advance.
- (2) Sustain them sufficiently long.
- (3) Finally, that they be ordered by the authority best situated to judge when they should be fired.

These fires are termed prepared concentrations.

The selection and precise determination of these zones, important as they are, are in general functions of the colonel in command of the subsector (in some cases, on very wide fronts, of the battalion commander on that particular front), in agreement with the commander of the groupment in direct support, who should be consulted on the capabilities of his groupment.

The commander of the subsector may reserve for himself the decision for opening fire, if he thinks he is in better position to decide; otherwise he delegates this authority to his subordinate battalion commander who is in better position to judge.

Sometimes the division commander might personally prescribe a certain number of these concentrations; this would be on areas of special importance to his maneuver from the division viewpoint; they might coincide with concentrations prescribed by the commander of the subsector, but more often will be in more distant localities, visible only by the air service.

In such cases, he will prescribe special surveillance and will prescribe or have his artillery commander determine the amount of artillery to be employed on these missions.

Finally, he will either reserve the decision as to when to open fire or delegate this decision to his aviation.

#### *System of Scheduled Fires*

These consist of:

- (1) Counterpreparation fires.
- (2) Protective fires in front of the position.

Counterpreparation fires are directed at the enemy while he is preparing for the attack or even after he is about to begin his advance to the attack.

During the last years of the war, it was possible to direct counterpreparation at the assembly areas of the enemy, because the amount of artillery available to the defender was considerable, and ammunition was abundant.

It is impossible to expect as much in open warfare, and rather than engage all his artillery, with the resultant heavy expenditure of ammunition, the commander is obliged to limit the fires to zones strictly essential, or supposed to be.

The purpose of counterpreparation is to break up the enemy's attack disposition, and having insufficient means to fire everywhere, attempt should be made to effect gaps in his line sufficient so that our defense line opposite these created

gaps will be attacked weakly, if at all, and so that there will be a certain number of open flanks which are vulnerable to the fires of our infantry.

The division commander should seek out from a study of the terrain, and from reconnaissances, a limited number of zones, presumably those most favorable for enemy preparations for the attack, and should deliver on these zones violent concentrations with all means available.

The difficulty is to select these areas, because they must be limited.

It is known that under average conditions, a battalion can neutralize a zone of from 7 to 12 acres in 10 minutes. In the concrete case cited here, which was under average conditions, the division had 10 battalions, and by employing all these battalions was able to neutralize a maximum of 70 to 120 acres, which represents an area about 700 yards square; this is evidently very little on a defensive front of about 9,000 yards.

#### CONCLUSION

Counterpreparation resembles greatly what was termed earlier as prearranged concentrations; it differs from these in the following:

- (1) It employs all the artillery of the division and the corps artillery.
- (2) It is applied prior to the attack on areas close to the line of departure of the enemy.
- (3) It can be fired at any time, even if the fire is not observed (night or fog); these are unobserved fires.
- (4) Finally, the time of opening fire is a decision reserved for the commander (division, corps, or army).

#### PROTECTIVE FIRES

This is the ancient barrage; above all, a system of fires for security: very simple, which must be ready to function on call, capable of execution automatically, and immediately, upon a simple signal from the infantry.

It consists of a system of linear fires of 75-mm. guns placed from 300 to 400 yards in front of the main line of resistance, and reinforced by the fires of the heavier artillery (155-mm. howitzers and 155-mm. guns).

It is known that a battalion of 75-mm. guns can cover a front of 600 yards. Thus, on the average defensive front it is impossible to place a continuous barrage.

Certain areas must be selected for these barrages: The division commander in the allotment of his artillery has given all his means to the commanders of the subsectors. Hence, these subsector commanders decide where these fires are to be placed. According to doctrines, these areas are those that are not sufficiently covered by infantry fires.

The orders pertaining to the artillery are incorporated in the division order for the defense under two separate paragraphs:

(a) The artillery paragraph of the division order, which contains instructions relative to *missions*, allotments and organization for combat, movement to position, ammunition.

(b) The paragraphs on conduct of the defense and organization of fires, which contain instructions issued by the division commander and the artillery commander relative to: Plan of fires, and time of opening, place for counterpreparation fires and concentrations (when applicable).

The following are the artillery paragraphs in the division order for the defense by the 36th Division:

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#### A—ARTILLERY PARAGRAPH OF THE DIVISION ORDER

1. *Mission.*—*a.* All artillery will be so emplaced that its fires can be placed in the area from the south edges (inclusive) of the Fontaine, Prince, and Graniere woods up to and including the regimental reserve line.

*b.* Without displacement, the 1st Battalion 318th and 2d Battalion, 214th Field Artillery, under orders of their commanders, will be able to fire distant missions as far north as the line: south edge of the towns of Landelies and Montignies-le-Tilleul.

## 2. Subdivision and organization for combat:

	<i>Groupments (Commanders)</i>	<i>Composi- tion</i>	<i>Normal Zone</i>	<i>Contingent Zone</i>
Direct support	GP No. 1, Commander of 1st Bn 14th FA	1st Bn 14th FA	34th Inf	
	GP No. 2, Colonel of 14th FA	2d Bn 14th FA	49th Inf	
	GP No. 3, Commander of 3d Bn 14th FA	3d Bn 14th FA	18th Inf	
General support	GP A, Commander of 318th FA	1st Bn 318th FA 2d Bn 318th Inf	49th Inf 49th Inf	34th Inf 18th Inf† 18th Inf 34th Inf†
	GP B, Colonel of 214th FA	1st Bn 214th FA 2d Bn 214th FA	34th Inf 49th Inf 49th Inf 18th Inf	
Corps Artillery in support of Division	GP of Dostienne, Colonel of 118th FA	1st Bn 118th 3d Bn 118th 1st Bn 358th	34th Inf 49th Inf 18th Inf	49th Inf 18th Inf 49th Inf

†After displacement.

3. *Movement into positions.*—The artillery will move into position commencing at dark; ammunition will be dumped at the positions. Ammunition vehicles will return to the rear immediately where they will draw ammunition at points and hours as follows:

Animal-drawn vehicles: At the Clermont trans-loading point (75-mm. guns at 1:00 AM; 155-mm. howitzers at 2:30 AM).

Motor vehicles: At the railroad station at Beaumont at 1:45 AM.

## B—CONDUCT OF THE DEFENSE

1. *Organization of fires.*—a. Movement into positions and time for opening of fires:

(1) Battalions participating in distant fires: on orders of the corps artillery.

(2) The remainder of the division artillery at an hour to be fixed by the division commander.

Registration: one piece per battery for adjustment of barrage fires.

b. Fires within the regimental echelon:

Barrages and prepared concentrations; by agreement between the subsector commander and the groupment commander.

c. Fires within the division echelon:

Two counterpreparations, as follows:

Clairiere d'Aulne	2d Bn 14th FA	Open fire on
	1st Bn 318th FA	orders of
	2d Bn 318th FA	Division
	1st Bn 214th FA	
	1st Bn 118th FA	
	3d Bn 118th FA	
Le Bout La Haut	1st Bn 318th FA	Open fire on
	2d Bn 318th FA	orders of
	1st Bn 214th FA	Division
	2d Bn 214th FA	
	3d Bn 118th FA	
	1st Bn 358th FA	

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The study, thus far, has endeavored to show the orders it is necessary to issue to emplace the artillery initially, in a defensive situation, and also the preliminary measures, reconnaissance and preparations it is possible to accomplish in order to facilitate the ultimate maneuver of this artillery, in accordance with developments in the situation.

We shall now illustrate the employment of the artillery with the 36th Division of the XVIII Corps in the defense of the Sambre in the vicinity of Thuin, 23 August 1914.

By means of this historical example, which is full of valuable information for commanders of all echelons, it is intended to point out certain interesting features of artillery employment during the early phases of the war.

Earlier in this study it has been shown how the artillery with this same division would be employed today, in defense of this same position, in accordance with present-day conceptions of the tactical employment of field artillery.

The following is an extract of General Lanrezac's order dated 21 August as pertains to the XVIII Corps:

"The XVIII Corps will organize the front: Thuin—Gozee—Ham-sur-Heure. Its outposts will hold the bridges across the Sambre; the mission of these outposts will not

be to resist the advance of columns of all arms, but merely to prevent cavalry (incursions) south of the river."

The timely receipt of these orders by XVIII Corps, which had not yet made contact, made it possible to put them into effect during 22 August.

Numerous information received at Beaumont (Corps Hars) during 22 August and during the night 22-23 August, showed beyond doubt that it would be necessary to defend on 23 August the position prescribed by the Fifth Army commanders.

The plan of defensive provided for strong counterattacks against all enemy forces advancing onto the plateau south of the Sambre.

During 22 August the division commander, 36th Division, accompanied by the corps artillery commander, made a reconnaissance and came to a decision as to the dispositions for the defense.

In view of the fact that the 35th Division (the other division of the XVIII Corps) had not arrived, and it was not known whether it would arrive in time to defend its part of the front, it became necessary for the 36th Division to defend on the entire XVIII Corps front. In view of this excessive front, authority was granted to employ 2 battalions (75-mm.) of the corps artillery to reinforce the division artillery. The other 2 battalions (corps artillery) were held in reserve at Stree (approximately 3½ miles south of Thuin).

The division artillery and the corps artillery were all placed under the command of the corps artillery commander. The artillery consisted of:

36th Division Artillery:

14th Field Artillery (75-mm.) (3 battalions).

Corps Artillery:

58th Field Artillery (75-mm.) (4 battalions).

There was no medium or heavy artillery.

The disposition of the 36th Division for the defense, in brief, was as follows:

Brigades abreast, 71st Brigade on the left.

*Disposition of the 71st Brigade:*

34th Infantry in defense of the position from Thuin to Champs des Oiseaux (inclusive).

49th Infantry in defense of the position from hill 210 to Gozee (both inclusive).

*Disposition of the 72d Brigade:*

18th Infantry in defense of position from Marbaix to Beignee (both inclusive).

2d Battalion, 12th Infantry, in reserve at Ragnies.

12th Infantry (less 2d Battalion) in reserve at Thuillies.

The artillery was disposed as follows:

a. *Organization for combat.*—1st Battalion 14th Field Artillery on hill 179, just south of Thuin, in surveillance of the sector of 34th Infantry.

2d Battalion 14th Field Artillery in surveillance of sector of 49th Infantry from position near Fme de la Corbillerie.

Two battalions 58th Field Artillery (corps artillery) in surveillance of the sector of the 18th Infantry from positions in vicinity of ridge: hill 197—hill 199.

3d Battalion 14th Field Artillery in reserve at Ragnies.

Two battalions 58th Field Artillery in reserve at Stree.

It is noted that the artillery was not assigned definite missions. The terrain in front of the infantry was subdivided into zones and a zone assigned to each for surveillance, which implied that it was to take under fire targets which appeared within their respective zones.

b. *Liaison.*—Prior to initial combat, the artillery established liaison with the infantry in its respective zone, in order to keep posted on the infantry dispositions and its requirements of artillery supports. However, in view of the poor communication facilities, this liaison was ineffective and the artillery fire was almost independent of the infantry actions.

c. *Command (groupments).*—The artillery was subdivided into groupments, each under a commander whose main functions consisted in prescribing the location of the artillery and delimiting the zone of surveillance of the battalions. Other than this, the groupment commander's influence on the action of the artillery depended on the individuality of each.

There are yet two other interesting points to note relative to the organization of the artillery for combat:

(1) The Gozee area was certainly the critical terrain of the defensive position. This front was covered by only one battalion of artillery while the 2d Battalion of this regiment was held in reserve at Ragnies.

(2) The regimental commander accompanied the single battalion on the left (on hill 179, just south of Thuin), super-

imposing his authority over that of the battalion commander, and exercised no control over the remainder of his regiment.

*d. Positions.*—Each battery had only 500 yards of telephone wire. This limitation in telephone communication necessitated the selection of positions in close proximity to points which afforded observation over the zone of responsibility of the unit. In order to facilitate visual liaison with the infantry, the positions, in general, were so close to the front lines that the slightest withdrawal of the front lines necessitated a rearward displacement of the artillery. An exception is to be noted in the case of the 58th Field Artillery, in rear of the 18th Infantry. The only suitable observation available to this unit was so far to the rear that it necessitated emplacing the artillery so far back that the guns could fire only approximately 2,000 yards in front of the position of the 18th Infantry.

Another example of the influence of observation on the selection of positions for the artillery is to be noted in the position selected for the 1st Battalion 14th Field Artillery. The location of this unit, to the flank of and actually outside the division sector, in the vicinity of La Borne, was selected by the corps artillery commander, because it afforded the only suitable observation over the zone to the north of Lobbes and Thuin.

The points mentioned, thus far, relative to the disposition of the artillery, would be construed as more or less serious errors today. However, during 1914, in view of the deficiency in means of communications, and observation aviation, the dispositions of the artillery of this division was not abnormal.

Another important point is to be noted. Three battalions of a total of seven, under command of the corps artillery commander, were held in reserve, initially. Two of these battalions, located at Stree, were not committed on 23 August. The 2d Battalion 14th Field Artillery, which was in reserve at Ragnies, was directed to move to position in the vicinity of Reumont to reinforce the artillery in support of the counter-attack which was launched against the Gozee salient. This battalion, due to its unfamiliarity with the situation, and lack of proper artillery liaison within the division, advanced to almost within the German lines on the spur south of Gozee, where heavy small-arms fire from the German lines forced the battalion to execute a countermarch and finally go into

position south of Reumont, where its fires in support of the counterattack were masked by the intervening woods, and were entirely ineffective.

The author then gives an interesting description of the execution of artillery fire missions during the defense of the position, in which he points out (1) the lack of coordination between the artillery and the infantry; (2) artillery fires were on targets of opportunity, almost entirely; (3) a battalion of light artillery covered a zone easily  $60^{\circ}$  in width, measuring approximately  $2\frac{1}{2}$  miles across; (4) he makes the observation, that while the artillery acquitted itself admirably in this situation, in covering all targets of opportunity that it would have been impossible to do so if more numerous targets had appeared in this zone of  $2\frac{1}{2}$  miles in width. He gives the figures 1,200 to 1,500 yards as being the maximum width over which we should expect a light battalion to furnish effective support.

The following observations are made relative to the employment of the artillery in the counterattack:

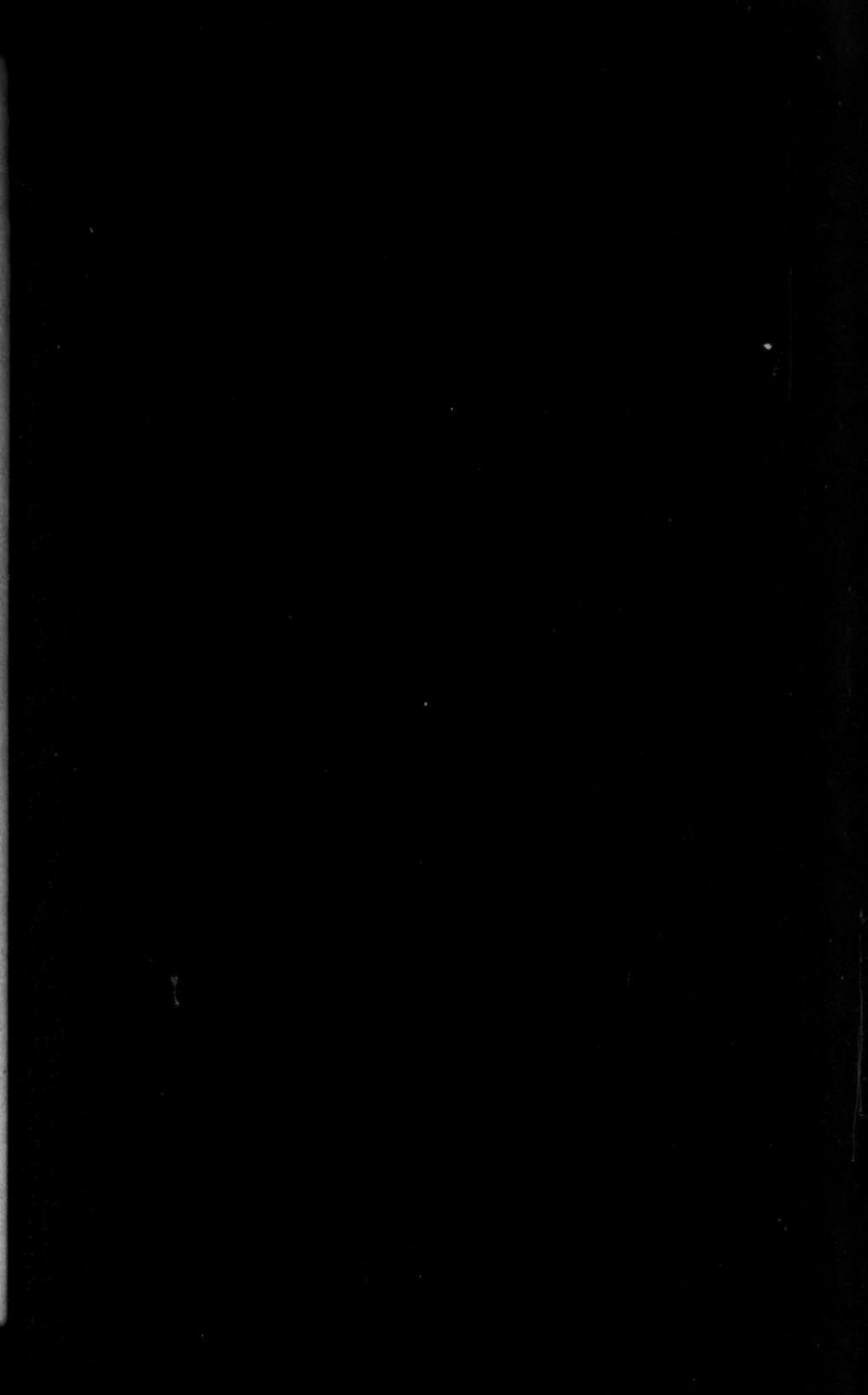
*a. Positions.*—2d Battalion 14th Field Artillery, which had been firing in the area west of Gozee, had difficulty in supporting the counterattack south of Gozee, due to unsuitable observation.

3d Battalion 14th Field Artillery, which charged towards the enemy lines and subsequently countermarched to a position where its fire was masked, has already been mentioned.

The fires of the two battalions 58th Field Artillery on hill 199, were mostly unobserved due to partial masking of the front by hill 181 south of Gozee. These fires, for the most part, fell beyond the enemy front lines.

*b. Command.*—There was no effective communications between the various artillery units and the headquarters of higher artillery commanders. There was no effective liaison between the artillery and the infantry. Consequently artillery support consisted mostly of individual battery fires.

*c. Objectives.*—The division order assigned as the objective the terrain immediately in front of the trenches previously abandoned by the 49th Infantry. This mission was vague, contained no prescriptions as to duration of fire, rate of fire, and coordination with the advance of the infantry.





*d. Results.*—(1) Artillery support west of Gozee by the 2d Battalion 14th Field Artillery was partially effective, resulting in partial success of the counterattack on the left.

(2) On the right, due to ineffective liaison and poor observation, artillery support was ineffective, and the counterattack met with little success.

#### CONCLUSION

In spite of the errors cited, the artillery accomplished its mission admirably. The support furnished by four battalions of light artillery enabled three battalions of infantry on the Gozee Marbaix front to contain an entire German division during 23 August, inflicting 1,800 casualties (from German Official Documents).

A comparison between the employment of the artillery in 1914 and its employment under present-day conditions, as described in the first part of this study, emphasizes the progress made since 1914, in the employment of matériel, observation, communication, and liaison. Attention is called to the prevalence of indecision on the part of commanders of all echelons, and the resultant indefiniteness of orders, throughout the actions of the 36th Division on 23 August. With reference to artillery orders, it is of importance that the artillery mission should never be expressed in vague terms, and by all means should not be a paraphrase of regulations.

The commander should state, in substance:

"I want all the artillery to participate in the defense of the main line of resistance. I want such and such outpost line to be supported by such and such amount of artillery."

The command should not order that:

"The artillery will take the enemy under fire with the maximum means, as soon as it comes within range."

He should order that:

"The artillery will take the enemy under fire when the enemy reaches such and such a line, with such and such amount of artillery."

Not only should orders to the artillery be clear, but they should be simple.

The artillery should not be assigned too many, nor too complicated missions.

Artillerymen should refrain from asserting or conveying the impression or assuming the attitude that no matter what the situation may be, no matter what problems are presented, no matter what time or means are available, the artillery can and will accomplish all that is demanded of it.

The artilleryman, as proud as he is and should be of his arm, should exercise discretion and not promise to accomplish the impossible.

#### EMPLOYMENT OF TANKS IN THE ATTACK

By Captain Wendell G. Johnson, Infantry

The employment of tanks is particularly studied in Poland with constantly increasing interest as the principles adopted by the Red Army for the intervention of armored vehicles in battle deviate more and more from those generally held. It is necessary to understand these principles in order to determine the defensive system most appropriate to their scheme of action.

These principles of employment aim to provide the attacking infantry with protection against the combined fires of the defense by the simultaneous destruction or neutralization, by the aid of tanks, of all the agencies of fire of the hostile defense, artillery included.

From this comes the employment of tanks in three groups:

Distant action group;

Direct support group;

Close accompanying group acting on the entire depth of the enemy defense system.

How in practice are these different waves of tanks going to function? What are the objectives of each? What are the methods of intervention adopted? How are the infantry and artillery to collaborate with the tanks? It is this new aspect of the problem that brings us the work of Brevet Commander Bien, Polish Army, drawn up according to the Soviet regulations.

#### THE DISTANT ACTION TANK GROUP

##### *Mission*

The objectives of this group are the artillery, the regimental and divisional reserves, staffs and rear area establishments.

Abstracted from *Revue d'Infanterie*, August 1935. "L'emploi des chars dans l'attaque," by Capitaine Lelaquet

*Matériel*

The tanks composing this group will always be the fastest that the commander of the attack has at his disposition. In general they will be medium tanks with the following characteristics:

Weight: from 16 to 20 tons.

Armament: one small cannon and five machine guns.

Capability: to cross trenches from one to one and one-half yards in width, and streams from one to one and one-half yards in depth.

Maximum speed: from 18 to 25 miles per hour.

The group of distant action tanks is organized by the corps commander or division commander, if the latter controls the distant action artillery.

The quantity of tanks entering into its composition is calculated on the basis of one platoon of five tanks per objective to be attacked. It is admitted, however, that the group will never contain less than two companies; its composition generally being one battalion.

*Methods of Intervention*

The distant action group, operating for the benefit of the attacking infantry, must attack the enemy artillery at the moment it is most dangerous, that is, when the infantry reaches the outer fringe of the line of resistance to be taken. Hence, it must be able to neutralize this artillery when the infantry leaves its line of departure.

The hour of its departure is determined, therefore, considering at the same time the speed of the tanks, by the average distance separating them from the area occupied by the artillery, and also by the delays in their movement caused by the maneuver of approaching the objectives to be neutralized.

The tanks of the distant action group debouch behind or simultaneously with the direct support tanks, which are charged with the neutralization of the antitank weapons of the hostile position of resistance. They are to advance directly on their objectives which they endeavor to reach with the least delay, only engaging antitank guns encountered on their route of advance which impede their progress.

The batteries to be neutralized are not approached from the front, but from the rear, in order to catch the personnel exposed, or from the flank in order not to give a single piece

the chance of engaging the attacking tank. It is considered that the neutralization of the batteries can be accomplished in 10 or 15 minutes.

The Soviet regulations prescribe that after carrying out their incursion the tanks should remain in the zone attained until the arrival of their own infantry. Certain authors emphasize, however, that this obligation imposes on them an extremely dangerous halt of from two to three hours within the enemy lines, and prefer an assembly in the zone behind the position of resistance where they should ordinarily find their own infantry, and then to operate for its advantage as the situation demands.

#### *Collaboration with Artillery and Aviation*

##### *Liaison*

During the debouch and advance of the distant action group, the artillery of the attack engages the hostile batteries until the approach of the tanks, or with its fire covers the flanks. On occasion it can facilitate the withdrawal of the tanks in case their action is unsuccessful.

Aviation can assist when possible by establishing a smoke screen on each flank of the advancing tanks or by attacking the hostile batteries and thus pointing them out to the tanks and facilitating their approach.

The distant action group is equipped with radio to include the platoon leader's tank. Its battalion net has a range of 7 miles; that of companies and platoons, 1,000 yards. It communicates normally with the artillery and aviation.

### THE GROUP OF DIRECT SUPPORT TANKS

#### *Mission*

The mission of direct support tanks is to destroy or neutralize the means of fire distributed in the zone in rear of the position of resistance: machine guns, accompanying weapon batteries, single cannons, battalion and regimental reserves. This leads to the possibility of penetrating up to one mile into the enemy lines.

#### *Matériel*

The matériel constituting the direct support group will be light tanks having the following characteristics:

Weight: 5 to 6 tons.

Armament: one machine gun and one cannon or two machine guns.

Speed: maximum from 14 to 18 miles per hour; average of 7 to 9 miles per hour.

Capability: to climb slopes of 30 to 50 degrees, cross trenches from one to two yards in width, and streams up to one yard in depth.

The allotment contemplated is, in general, one company to each attacking regiment.

#### *Organization*

The group of direct support tanks is either controlled by the division commander, or reallocated among the attacking regiments. Various factors govern the choice of the organization of this group.

(1) *The width of the front of attack.*—On a narrow front and to assure better coordination with the other arms, the group will be constituted within the division echelon. On a wider front it will be preferable to allow regimental commanders the duty of organizing their group of direct support tanks.

(2) *The terrain.*—On open terrain, with wide visibility, centralization under the division is required, whereas, in broken country, with terrain compartments, decentralization to regiments is preferable.

If the division attacks in a single terrain compartment, it should be responsible for organizing a single direct support group under division control. If, on the contrary, each regiment attacks in separate compartments, the duty of controlling the different groups should fall to the regimental commanders.

(3) *The quantity of tanks in the attack.*—The number of tanks available for the attack will not always permit the organization of a direct support group. In this case, the group will be sacrificed to the use of the close accompanying group, which will then be given a mission deeper than that which normally falls to it.

#### THE GROUP OF CLOSE ACCOMPANYING TANKS

This group is destined for close and constant collaboration with the infantry, and the group's primary mission is to accompany it everywhere by intervening in the zone of its action and likewise in the zones where the attack does not penetrate, but from which may come fire capable of arresting the advance of the infantry.

### *Matériel*

The close accompanying group will be constituted by the use of the lightest tanks that the commander of the attack has at his disposal. The allotment varies from one platoon to one company per battalion, the allotment of one platoon not being generally admitted except for attacks directed against objectives of secondary importance.

### *Organization*

The regulations provide that the tanks of the close accompanying group be distributed among the attacking battalions and cannot be put to the disposition of commanders of rifle companies. However, in the Soviet press, the question is still much discussed and the detailing of this group to companies has fervent partisans.

### *Methods of Intervention*

The action of close accompanying tanks should above all exert itself when the infantry arrives at assault distance.

The tanks should therefore reach the forward hostile positions when the infantry is still about 200 yards therefrom. It is advisable, in consequence, to carefully calculate the hour of their debouch, taking into consideration the distance to be traversed, the speed of the infantry, and the speed of the tanks themselves.

Set in motion by the infantry battalion commander, the close accompanying tanks are entirely utilized to engage the means of fire of the position of resistance throughout the zone of action of the battalion, making their effort principally against the point of the hostile defense which, if broken up, will dislocate the defense and facilitate the infantry mission.

The tanks advance directly on their objectives without "tacking" or maneuvering, constantly keeping visible contact with the infantry; they do not outdistance it more than 1,000 yards in order to be always within the protection of its arms, and to be able, if the need arises, to rapidly turn back to neutralize or destroy the weapons that may stop the infantry advance.

By priority the tanks engage antitank guns. As soon as one exposes itself, it is instantly taken under fire by the tank that discovered it, which fires a tracer shell in its direction.

This is a signal for the nearby tanks, which automatically concentrate their fires on it.

The action of tanks against nests of resistance with automatic arms well sited in narrow, deep, and carefully camouflaged trenches will often be difficult owing either to the difficulties of observation or to the impossibility of reaching the defenders by fire. The cleaning out of these nests of resistance can be facilitated by the intervention of tanks provided with flame-throwers.

#### EMPLOYMENT OF THE ARTILLERY

Where the three groups of tanks have been constituted, it is easy to imagine that when the infantry debouches, the distant action tanks and direct support tanks will be deeply dispersed within the interior of the enemy position. Even in the most favorable terrain for distant observation, it cannot be imagined that the movements of the engaged tanks can be followed with precision.

What will be the artillery action in such cases?

It does not seem that the problem has been solved.

Theoretically and over and above the mission of covering the emplacing of the tanks by the noise of firing, the missions provided for the artillery are the following:

- (1) Before the debouch of the attack:
  - (a) Destruction or neutralization of the fires of the antitank defense;
  - (b) Counterbattery.
- (2) During the attack:
  - (a) Fire on dangerous or suspected dangerous points that are inaccessible to the tanks;
  - (b) Direct support fire and protective fire on the fronts of the zone of attack where tanks are not to be employed;
  - (c) Fire on the most visible objectives (primarily antitank guns) situated in the zone comprised between groups of direct support and close accompanying tanks, whenever good observation is possible.

Is the conception of tank employment adopted by the Soviet Army final?

It has many admirers in the Red Army, but certain of the principles are also the object of severe criticism.

Is this the formula of war of the future? It would be premature to make such an affirmation before it has been tested by experience.

Let us recognize it in one quality: audacity.

But let us note therewith that it imposes an artillery problem which is difficult to solve. Actually, and in most cases, an offensive action supported by a deep penetration of tanks cannot count on more than intermittent and fragmentary support of the artillery after the tanks penetrate into the enemy position.

But is the tank sufficiently powerful and its invulnerability sufficiently great for it to take over and carry out with a minimum probability of success all the missions that formerly devolved upon the artillery?

Granting the new possibilities that technical science has opened to tanks in improving their speed, fire-power, and resistance to hostile fire, it appears a bit premature to make such a declaration.

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#### TANK EXERCISES IN WINTER

##### Combined Exercises of Tanks with Riflemen on Skis

By Major G.J. Braun, Infantry

The following article is based on a report by the *Krasnaja Swjesda* of an exercise held by a reinforced tank battalion in winter.

The tank battalion consisted of one reconnaissance platoon; 3 companies, 2 of which were on snowshoes; one air communications section and one engineer platoon.

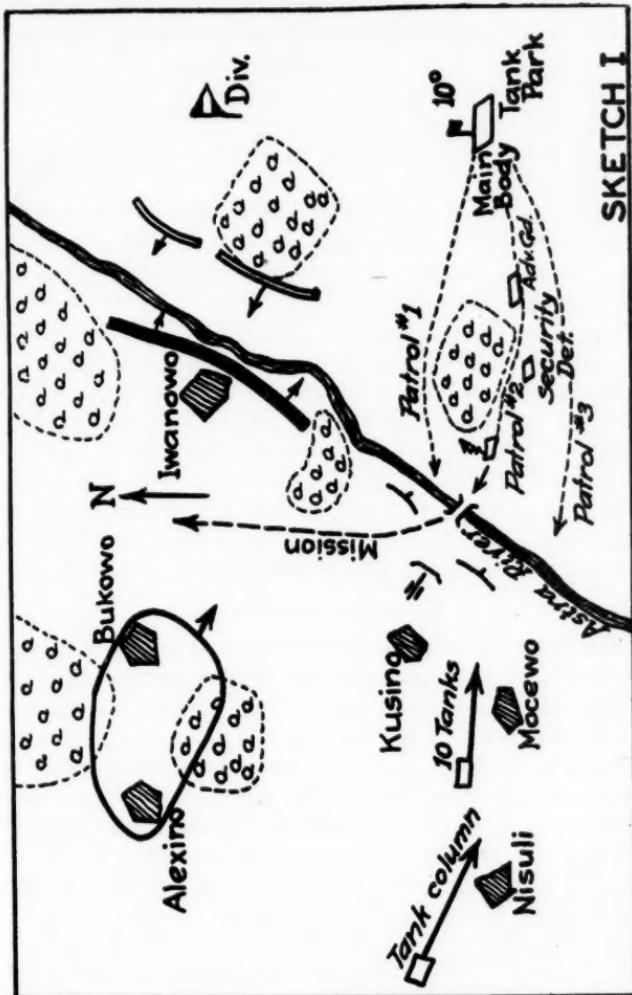
The tank battalion was detached from the main forces and given the independent mission: to surround and destroy the enemy who during the night had rested in the area of Alexino and Bukowo and was now located in the vicinity between Iwanowo and Bukowo in order to assist the attack of the division. (See Sketch No. 1.)

The exercise took place over open and sparsely covered terrain. The Astra River is about 30 to 36 feet wide and 3 to 15 feet deep, the east bank being steep and the west bank somewhat flat. The depth of the snow in the open terrain was about  $4\frac{1}{2}$  feet deep and in the woods about 18 to 20 inches deep.

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Abstracted from *Sanct Christophorus*, May 1935. "Kampfwagen-Uebungen im Winter. Zusammenwirken von Kampfwagen mit Schützen auf Schneeschuhen."

During the maneuver a west wind was blowing and the temperature was 12 degrees below zero.



After having marched  $9\frac{1}{2}$  miles the tank battalion reached the point as shown on Sketch No. 1 at 10:00 AM. No information was available relative to friendly troops or the enemy. On continued approach the battalion encountered hostile patrols on skis which were driven back.

The battalion advanced in the following formation: It was preceded for reconnaissance and security purposes by two patrols on snowshoes to cover the right and left flanks, one patrol in advance along the line of march, followed by 3 tanks, one of which was equipped with radio. After an interval, a security detachment composed of one squad of riflemen and two squads of engineers on skis, advanced with the mission to reconnoiter and prepare a crossing of the Astra River by the main body.

This again was followed by the advance guard consisting of one platoon of tanks or self-propelled mount and one platoon of riflemen on skis with the mission of securing the crossing of the Astra for the main body.

The main body advanced in the following order of march: Staff with its communication platoon and the company commanders of two leading tank companies, one tank company, one squad engineers, one battery of artillery, two tank companies, one field piece on a self-propelled mount, one squad engineers on skis and a security group in rear. The riflemen traveled on skis about 30 feet to the right of the column.

During the advance the flanks of the main body were protected by ski patrols about 500 yards on either flank.

#### PROGRESS OF EVENTS

The leading flank ski patrols observed and then advanced by bounds, evading laterally any hostile movement.

The security detachment which moved out along the route of advance was preceded by ski patrols whose primary mission was to determine the depth of the snow and ice to assure a steady advance for the main body. Three patrols interspersed with engineers were sent forward upon approaching the Astra River. The engineers were protected by the riflemen while they examined and tested the strength of the ice and the depth of the snow for a possible crossing. The result of the reconnaissance was relayed to the commander of the tank battalion. The commander then decided where he wished to cross and the construction of the crossing was started, giving due consideration to the weight-carrying ability of the ice at that place, and in case it could not accommodate the entire detachment several crossings were then to be prepared.

While engaged in this work the battalion commander received the following messages:

Radio message from Patrol No. 2 which had preceded the battalion along the route of advance, stating that it had arrived at the east bank of the stream. The security detachment sent a message, that the west bank of the Astra River was held by weak enemy troops and that the available bridge was dominated by a hostile field piece and that various crossing sites had been reconnoitered. A message from the air service informed him that 10 hostile tanks with their head at Mocewo were approaching the river, and that a tank column of about  $\frac{3}{4}$  mile in length was observed with its head at Nisuli. At the same time he received a message that his own infantry division had started its attack.

The battalion commander immediately decided to cross the Astra River rapidly and move out in the direction of Kusino in order to destroy the hostile tanks and then to strike the enemy in the flank and rear.

As soon as the site of crossing was determined, the infantry and the battery approached the river while the tanks remained under cover. The security detachment received orders to cross the river at a different place.

Sketch No. 2 illustrates why the battalion commander selected site No. 2 for the crossing. It was more suitable because the pine woods and the lesser depth of snow at that point facilitated an easier approach to the stream. Site No. 1 was unsuitable due to the  $4\frac{1}{2}$  feet depth of the snow and the snow drifts all around the site. Although the stream was deeper at site No. 2, the ice was considerably stronger by about 9 inches.

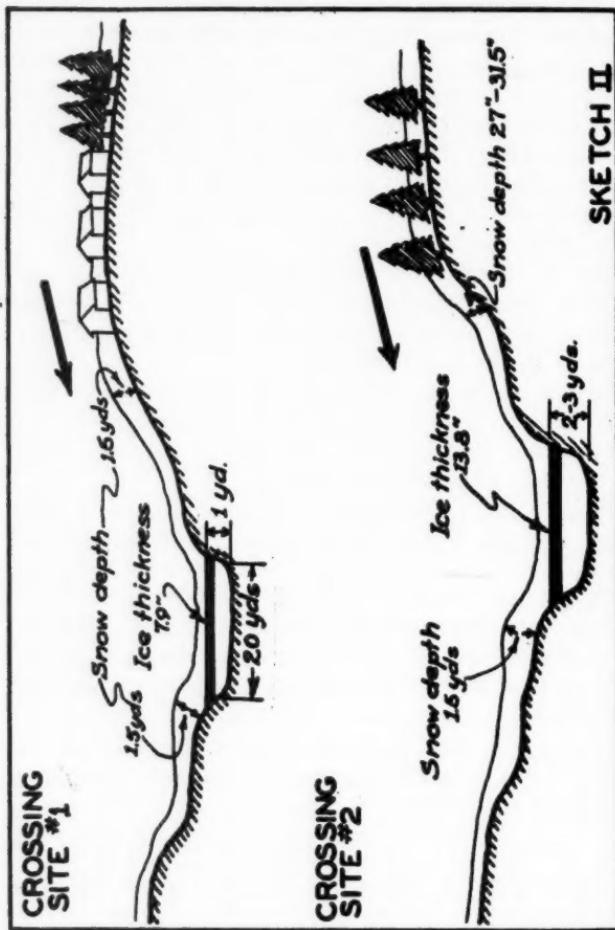
The security detachment was used to clear a path through the deep snow, prepare avenues of approach and departure at the river, and strengthen the ice.

#### CONDUCT OF THE CROSSING OF THE STREAM

Assisted by the supporting fire of the artillery and the fire from stationary tanks, the infantry engaged the enemy on the opposite bank. Under this protection the security detachment carried out its work of crossing preparation. The tanks then crossed the stream and passed through the infantry to engage the enemy. The infantry then followed the tanks on skis.

As the attack progressed the tank battalion reached the vicinity of Kusino. At this point the commander was forced

to make an important decision, whether to attack the hostile tanks approaching via Nisuli and Mocewo or whether he should await them, utilizing the favorable terrain in order to destroy



them by well-aimed fire from the halted tanks while under cover.

The commander decided on the second alternative for the following reasons:

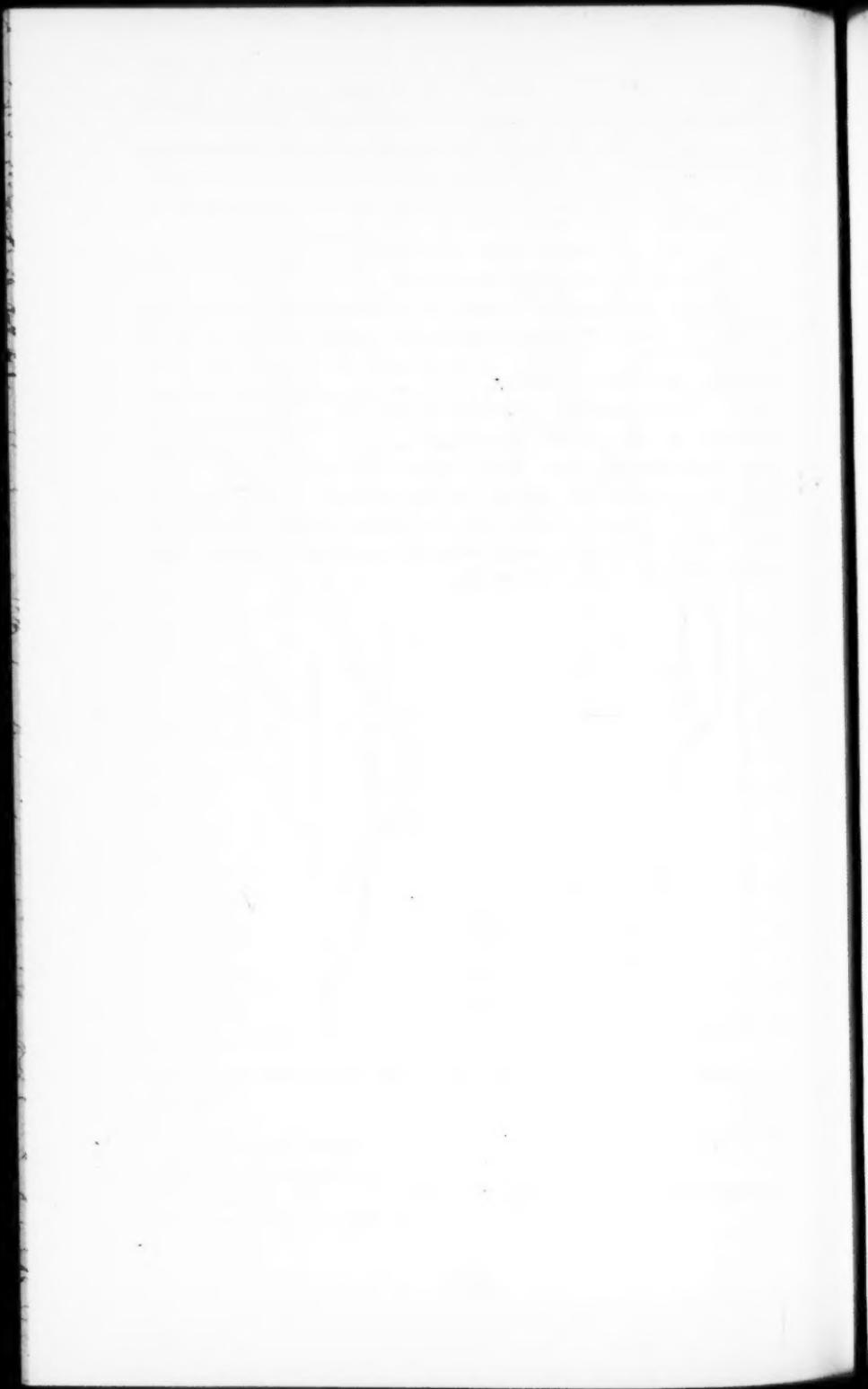
- (1) The snow interfered with mobility and made an attack more difficult.

(2) Any saving of fuel would help the execution of the mission in the direction of Iwanowo.

(3) Utilizing the opportunity and advantage of bringing the enemy under well aimed and prepared fire.

(4) An attack over this terrain covered with deep snow would be extremely difficult.

From the foregoing account it is demonstrated that tank units can maneuver over considerable distances even in snow  $4\frac{1}{2}$  feet deep. This fact is especially of interest for those military students who desire to know the capabilities of tank units. The combined effort of tanks with a detachment of riflemen on skis is also of especial interest. This experiment also demonstrates that when tanks function in deep snow their progress is slow enough for ski runners to keep up with them. It is also of interest that in Poland similar experiments have been conducted where the ski-equipped riflemen were drawn by the tanks themselves.



**Section 3**  
**DIRECTORY OF PERIODICALS**

Included in this directory are only those periodicals from which articles have been selected.

See also, Section 7, "List of Periodicals Indexed and Key to Abbreviations."

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## Section 4

### CATALOG OF SELECTED PERIODICAL ARTICLES

This section catalogs the articles selected from Library periodicals for the current quarter. Periodicals in this Catalog are arranged alphabetically.

#### **ARMY MEDICAL BULLETIN**

**October 1935**

(1) NOTES ON FIRST ARMY MANEUVERS, 1935, PINE CAMP, N.Y.  
Lieut. Colonel Carter

A very comprehensive article by an umpire observer at the Medical and Sanitary First Army maneuvers, 1935, followed by the author's conclusions as to changes recommended in the medical regiment and others.

#### **ARMY, NAVY AND AIR FORCE GAZETTE** (Great Britain)

**24 October 1935**

(1) THE RIGHT OF SEARCH AT SEA. Rear-Admiral Thursfield

The author raises the legal question whether any nation, member of the League of Nations, has a right to search ships destined for Italy. To this the author replies in the affirmative, because League members have agreed in signing the covenant that any state which resorts to war in disregard of its covenants "shall *ipso facto* be deemed to have committed an act of war against all other members of the League."

**31 October 1935**

(2) RUSSIA'S WAR POTENTIAL. Brigadier-General Waters

The author, after having visited Russia is of the opinion that the war potential of Russia is a high one and that in spite of the inevitable shortcomings, the patriotism, coupled with intense zeal of the factory workers, Russia could provide a sufficient output of everything required in the event of a great war.

**14 November 1935**

(3) ON STUDYING THE ART OF WAR. Général Camon

The author advocates the proper study of military history, which should not become an exercise of memory, but a series of interesting problems. To each type of strategy or battle, other examples should become attached and which will come before the mind's eye when one is faced with a similar situation.

**12 December 1935**

(4) THE "MOTOR CANNON" AND THE SINGLE-SEATER FIGHTER. Flying Officer Dunworth

The author discusses the advantages of providing single-seaters with a 20-mm. motor cannon.

**19 December 1935**

(5) THE PERMANENCE OF THE FORMS OF BATTLE. (I). Général Camon

General Camon, in a series of articles gives his views of how and when Napoleon conceived his system of maneuver and battle.

**26 December 1935**

(6) THE PERMANENCE OF THE FORMS OF BATTLE. (II). Général Camon

General Camon's theory is that progress in armaments has not changed forms and systems of battle. In this second installment he continues his survey of the subject.

**2 January 1936**

- (7) THE PERMANENCE OF THE FORMS OF BATTLE. (III) Général Camon  
A continuation of the article described above.

**9 January 1936**

- (8) THE COMPARATIVE STRENGTHS OF WORLD AIR FORCES. Flying Officer Dunworth

The author makes a brief inspection of the world air forces together with a short inquiry into plans for expansion and reorganization.

- (9) THE PERMANENCE OF THE FORMS OF BATTLE. (IV) Général Camon  
The fourth installment of this serial. The author discusses Schlieffen and Joffre in this issue.

**16 January 1936**

- (10) FIGHTERS WITH GUNS AND THE TACTICS OF THE AIR BATTLE. First Lieutenant Feuchter, Retired

The author discusses the development of some of the latest military inventions such as hand torpedos, electric machine guns, and others.

**23 January 1936**

- (11) AN AMERICAN EXPERIMENT. By "Solaire"

A discussion of the article "Our Air Farce," by Cy Caldwell, which appeared in the American magazine "Aero Digest," in which Mr. Caldwell would like to see the control of the air defense taken away from the Army and Navy and the Air Force organized into a separate service.

- (12) GENERAL LUDENDORFF'S "ALL-IN WARFARE." Walton

A discussion of General Ludendorff's book "Der Totale Krieg," in which the author's thesis is that war of the future will no longer be an instrument of policy, but a struggle for a nation's very existence. Everything must be subordinated to the aim of winning the war and the war leader must be in supreme control of the nation.

### **ARMY ORDNANCE**

**September-October 1935**

- (1) DEFENSE OF THE SUEZ CANAL. (I) Colonel Wagner

After describing the defense of the Suez Canal during the World War, Colonel Wagner draws certain analogies to the Panama Canal. Developments in the Italo-Ethiopian situation emphasize the strategic importance of the Suez Canal as an element of military supply.

- (2) FACTS, PACIFISM AND INK. Lieut. Colonel C.L. Hall

Colonel Hall has written a timely and instructive article in which he brings out the following five propositions of peace and war:

(a) War is a means of altering the international status (i.e., of enacting international legislation), and seldom has any other function. It is the only means now available.

(b) Some means of international legislation must exist.

(c) In order to avoid war a peaceful instrument of international legislation must be provided.

(d) An international legislature cannot function except in a world enjoying freedom of trade and freedom of migration.

From these four propositions the fifth follows automatically:

(e) As a prerequisite to the prevention of war, there must be established freedom of trade and freedom of migration.

By war of conclusion he states that the man who is in favor of universal peace, complete freedom of trade, and complete freedom of migration, is entitled to respect as a sincere and logical reformer—though he may be regarded, with some justice, as a doctrinaire. The man who is in favor of universal peace, Chinese exclusion, and the protective tariff is talking through his hat—and not a very large hat at that. Until freedom of trade and freedom of migration are established, there can be no international legislature. Until an international legislature is established there can be no peaceful means of altering the *status quo*. Until rates of increase of population, economic conditions, and culture are all simultaneously

stabilized, the *status quo* must from time to time be altered. These alterations will be procured, not by a balance of votes, but by a balance of force. In determining this balance, direct military and naval strength is, admittedly, only one element—but it is a vital element. The international legislation of the future, like that of the past, will be settled by hard facts—usually very hard facts indeed—and not by pacifism or ink.

(3) ORDNANCE ACTIVITIES IN THE ZONE OF THE INTERIOR. (II) Major Marsh

**November-December 1935**

(4) DEFENSE OF THE SUEZ CANAL. SECOND PHASE—FEBRUARY, 1915, TO THE BATTLE OF ROMANI. (II) Colonel Wagner

**ARMY QUARTERLY** (Great Britain)

**January 1936**

(1) SWITZERLAND AND HER DEFENCE PROBLEMS. John Graf, Swiss Army

The author discusses in this article the defense problem of Switzerland, which is based on two predominant premises: the first a physical one—her geographical position in the very heart of Europe surrounded by three of the principal military powers; the second a moral one—her absolute will and duty to remain neutral in any armed conflict unless directly attacked. The author concludes that the most effective defense of Switzerland's independence, liberty and neutrality always will be the firm will of the Swiss people, to watch over them with jealousy and protect them at all costs.

(2) MOTOR CYCLES AS FIGHTING VEHICLES. Captain Clifton

The author recommends the use of the motorcycle for military purposes, claiming that in its commercial form it is suitable for such and that it conforms to the first principles of mechanization.

(3) IS WAR MORE HORRIBLE? Major-General Fuller

General Fuller brings out in this interesting article that in the two great spheres of war, the physical and psychological, ever since the middle of the last century war has become physically less horrible and psychologically more terrible.

(4) THE OPERATIONS IN SOUTHERN KURDISTAN, MARCH-MAY, 1923. Captain Thurburn

The author, after describing the operations in Southern Kurdistan in 1923, comes to the conclusion that in small wars, combined air and ground operations should mean the ability to dispense with lines of communication, and gives four alternatives for this:

- (a) To take all supplies, ammunition, and stores with the column;
- (b) To live on the country, and to take the remainder of necessary stores;
- (c) To be supplied by air;
- (d) A combination of two of the above.

**BULLETIN BELGE DES SCIENCES MILITAIRES** (Belgium)

By Lieutenant R.E. Moore, Infantry

**July 1935**

(1) DISCOURS PRONONCÉ PAR M. LE MINISTRE DE LA DÉFENSE NATIONALE AU BANQUET DES OFFICIERS DE RÉSERVE DE BELGIQUE, LE 16 JUIN 1935. [Address given by the Minister for National Defense at the Belgian Reserve Officers' Banquet, 16 June 1935.] Defeze

The theme of this address is that of Belgian national defense. Belgium must not be caught off guard again as in 1914.

Many suggestions have been offered for consideration as to the strengthening of the defense of Belgium, among them being that of decreasing the number of exempted people in time of emergency; of leaving fewer troops in the interior and sending more to guard the frontiers; of increasing

the size of the present standing army. Unfortunately, however, each plan either involved a drain on the treasury or was discarded for political reasons.

The two salient features of the plan of the Minister of National Defense are: (a) The government must have the power to demand and get anything it wishes from private industry in time of war; and (b) The eligibles in Belgium must be trained in the use of arms in time of peace.

This plan in no way increases the size of the regular army and thus cannot cause unfavorable criticism from other nations and it will cost the government very little money. The importance of beginning at once is stressed.

(2) PAGES D'HISTOIRE DE L'ARMÉE BELGE AU COURS DE LA GUERRE 1914-1918.—ATTAQUE DE LA GRAND' GARDE D'HOUGAERDE, 18 AOÛT 1914. [History of the Belgian Army in the World War.—Attack of the Grand-Garde d'Hougaerde, 18 August 1914.] Major Verheggen

(3) LE REPLI. [The withdrawal.] (I) By J.L.H.

To break contact with the enemy and move to the rear is a very delicate operation and must be executed with great care. It must be conducted without the knowledge of the enemy if possible and conducted rapidly and orderly.

Three general questions arise:

How to keep the information from the enemy?

How to withdraw the main body of troops?

How to protect the movements of the main body of troops?

The best way to keep the enemy from learning of the withdrawal is to execute it at night. The usual patrols should be sent out and the usual amount of fire kept up at the front during the withdrawal. A withdrawal may also be made very effectively under cover of fog, heavy rain, or snow, the only disadvantage being that the weather may change almost momentarily, leaving the troops exposed in full view of the enemy.

The actual withdrawal of the main body of troops must be carefully planned so that it will result in the least possible confusion. Each commander must know exactly where to go, where he may expect to gain contact with his commander, etc. The rolling stock precedes the troops to the rear, since it is the most heavy and unwieldy element of the column. The engineers are responsible for the condition of the roads over which the rolling stock must travel. The medical service is notified of the withdrawal as soon as possible so that the wounded may be moved to the rear. The actual movement of troops to the rear is a very delicate matter and must be watched by the officers in order to prevent a possible panic. When soldiers are told to turn their backs on the enemy, they begin to suspect that something is wrong and to develop the desire to run. There are just two ways of keeping them calm: by the example of their officers, and by firmness, and if necessary, brute force.

As for the protection of the main body while moving to the rear, either a fixed or mobile guard may be left behind. In the case of a fixed rear guard it will be provided with machine guns, antitank guns, artillery and aviation to help it carry out its mission. It will be given a definite order to hold until a fixed time.

(4) NOTES SUR LA DÉFENSE CONTRE LES VÉHICULES TOUS TERRAINS. [The defense against cross-country vehicles.] Major Wanty

The author first discusses the various types of tanks: very light, light, medium, and heavy. He gives some of the characteristics of each and points out that the thickest armor plate used on any of them does not exceed 25-mm.

Next, he lists the three general types of antitank weapons, namely, the automatic rifle, machine gun and cannons, giving their caliber, rate of fire, weight and penetrating power at various distances. Having thus set down these facts and figures, he has a sound foundation on which to base his ideas on antitank defense.

The vulnerability of a tank depends on its protection, its dimensions, its form, and its speed.

As regards their protective armor, it may be said that all tanks are vulnerable to some kind of antitank weapon.

The dimensions of a tank do not have any great bearing on its protection. With the exception of the Carden Lloyd Tankette, all tanks have a minimum height of two yards and are easily seen when within the field of fire of antitank weapons.

As to form, the tendency is to taper them so as to reduce the angle of incidence. If the angle of incidence is 30 degrees or more, the armor plate may be penetrated. Regardless of shape, however, the turret will always be a particularly vulnerable part of the tank.

The speed of a tank has a very great effect on its vulnerability. The maximum speed of a tank over rough ground is usually in direct ratio to the length of the tank. However, one should not be misled by the maximum speed, because they must all slow down considerably when in actual combat in order to be able to observe and fire effectively.

Having thus determined some of the facts of vulnerability of tanks, it is still necessary to study their offensive action before establishing a definite doctrine of defense. An attack by tanks against a position may take on any one of several aspects: if the tanks are large and slow moving, they may advance all in one line with small intervals between them; if they are fast moving vehicles, they must be spaced at wider intervals in order not to get in each other's way as they zigzag to avoid obstacles. Another method of attack would be to send one wave of tanks straight through the enemy lines toward their objective with a second wave of the same type of tanks to clean up. It is also possible to organize an attack so that the heavy tanks will be used against the larger antitank weapons and the light tanks against machine gun nests and personnel.

There are three general methods of antitank defense: a passive defense, an active defense, and a combination of the two. The passive defense consists in either setting up obstacles to stop the progress of the tanks or selecting a position behind natural obstacles. The most common artificial obstacles are tank traps, ditches, and mines. The best natural obstacle is a stream or river too deep to be crossed.

The active defense, of course, involves the use of the various antitank weapons. The question arises as to how many of these weapons are necessary to successfully stop an attack and how they should be placed to defend an extended front. The author discusses these questions in some detail for an attack on a defensive position, on the advance posts and on advance guards.

In conclusion, Major Wanty states that new methods of training will have to be incorporated into the Belgian regulations in order to successfully combat this new type of attack and that the terrain will be the most important factor in the study of antitank defense. The Belgian army has a very effective weapon in the 47-mm. cannon. It hopes to have enough of these weapons to supply each regiment and still have some in reserve for the infantry division. It also hopes to supply the infantry battalion with an antitank weapon of 20 or 25 caliber which will be more easily handled and less vulnerable than the larger weapons.

(5) QUELQUES NOTES SUR LA TRANSMISSION PAR RAYONS INVISIBLES.  
[Transmission by invisible rays.] Lieutenant De Groote

In all wars the question of preserving the secrecy of military messages has been one of great concern to the commanders. It is the purpose of this article to present some of the developments in a comparatively new method of transmitting messages.

It is a well known fact that all of the light rays emitted from a luminous body are not visible to the eye. Those which we can see may be said to be bound by extreme red and extreme violet. Those rays not within these bounds are termed either infra-red or ultra-violet rays. These invisible rays have several peculiar characteristics:

First of all, certain substances when hit by ultra-violet rays become phosphorescent. If the infra-red rays act on the substance at the same time, the phosphorescence fades or even completely disappears. Secondly, either ultra-violet rays or infra-red rays change the electrical characteristics of certain substances such as thalium sulphide, selenium, and molybdenum. Thirdly, the atmosphere plays an important part in the transmission of

these rays. Rain or thick fog will almost completely obscure the ultra-violet rays, while it will not affect the infra-red rays to any great extent.

It is possible to separate these rays from the visible rays and to concentrate them into thin invisible beams. These beams may be sent from very short distances up to six or eight miles, depending on the strength of the sending apparatus. The beam may then be picked up at the other end by a receiving apparatus.

The great advantage of this means of sending messages is its secrecy. In order to interrupt a message, the enemy would first have to know the exact bearing of the invisible beam and then set up a receiving apparatus somewhere on its path. One of the greatest disadvantages is that, unlike radio, there can be no physical obstructions between the sender and the receiver.

In conclusion, the author states that while this method of transmitting messages will not replace any of the other methods, it will eventually find its place in signal communication and will be as indispensable as the telephone or telegraph.

#### August 1935

(6) LES FÊTES DU CENTENAIRE À L'ÉCOLE MILITAIRE.—MEMENTO DES FÊTES DU CENTENAIRE (30 JUIN AU 7 JUILLET 1935). [The Centennial at the Ecole Militaire, 30 June 1935 to 7 July 1935.] By B.B.S.M.

The Belgian Ecole Militaire for the training and education of young officers was established in 1834 with General Chapelie as its commandant.

The school celebrated its hundredth anniversary last summer. Representatives of the military schools of England and France were invited to take part in the celebration and King Leopold himself was present during some of the ceremonies.

#### September 1935

(7) LES ORIGINES DE LA VÉLOCIPÉDIE MILITIAIRE EN BELGIQUE. [The origin of the military bicycle in Belgium.] Captain Corvilain

The present bicycle is quite an improvement over the first contraptions used in 1818 without pedals. They were propelled by the feet on the ground. In 1855 someone invented the system of pedals and made a bicycle entirely of wood. In 1869, wood was replaced by iron. These were the bicycles with the large front wheel and small rear wheel. At this period, cycling was considered more in the class of acrobatics than that of sport.

Cycling enthusiasts in Belgium spent many years trying to convince the military authorities that the bicycle could be used to advantage in warfare.

A young lieutenant named Gaston Beirlaen is almost solely responsible for the adoption of the bicycle in the Belgian Army. He became editor of a periodical called "La Pedale Militaire," in which he published his ideas on the military importance of the bicycle and in which he traced the progress of the other nations along this line. He finally succeeded in getting the Minister of War to authorize a company of cyclists. This company took part in the maneuvers of 1896. Lieutenant Beirlaen's company was attached to the 3d Division of Artillery, given a mission to perform, and then told to keep off the main roads so as not to impede the advance of the artillery. In spite of all the obstacles placed in their path, the company of cyclists succeeded in getting information of the enemy and getting it back in almost record time.

As a result of his success in this maneuver, Lieutenant Beirlaen was sent to other countries to study the military bicycle. He had the good fortune to see cyclists used against Germany and to learn that his cyclists had been dubbed by the Germans as "Black Devils."

(8) UN EXERCICE DE COMPAGNIE EN GARNISON. [An exercise of a company in garrison.] By Major X

The author selects a company problem which he has carried out and which seems to bring out certain points in infantry tactics which may be of value.

The problem is that of a company in attack under cover of woods. The points brought out are: the manner of advance through the woods, the function of patrols, the action and decisions of the company commander, the use of the company reserve, and the necessity of establishing a defense against a counterattack.

(9) QUELQUES ENSEIGNEMENTS D'ORDRE TECHNIQUE TIRES DE PASSES DE RIVIERES EXE<sup>C</sup>UT<sup>E</sup>S PAR L'ARM<sup>E</sup>E ALLEMANDE DANS LA GUERRE MONDIALE. [River crossings executed by the German Army in the World War.] Major General Pierard

In 1933 and 1934 two works were completed and sent to Berlin on the subject of river crossings. One was by General Königsdorfer, who wrote of the crossing of the Meuse, of the Oise, of the Nethe, and of the Yser in France and Belgium, and of the Bzura, the Narew, the Dneister and the Vistula on the Russian front. The other was by Major von Bose, who discusses only two river crossings: those of the Save and the Danube. These river crossings all took place before November 1916. Many more could have been included were it not for the lack of complete information on the subject during the latter years of the war.

Major von Bose chose to discuss the Danube crossing, first because of the great width of the Danube, and secondly, because this particular crossing was executed under a heavy fog.

General Königsdorfer stresses the need for advance preparation of sufficient bridge-building material and material which can be more easily and quickly transported to the points where it is needed. He also discusses the various methods used in crossing the above-mentioned rivers.

(10) LE REPLI. [The withdrawal.] (II) By J.L.H.

A continuation of the article which appeared in the July 1935 issue of the "Bulletin Belge des Sciences Militaires."

#### **CANADIAN DEFENCE QUARTERLY (Canada)**

**January 1936**

(1) "CAN CANADA DEFEND HERSELF?" Major Lisle (Prize essay, 1935)

A survey of the Canadian defensive organization. The article is divided into four main headings, viz.: (a) Canada's obligations; (b) The evolution of the fighting forces; (c) The rôles required of the fighting forces; and (d) Canada's defensive organization.

(2) THE MEMEL CRISIS. By An Observer

According to the author the little Baltic seaport of Memel was the scene of a European crisis on 29 September 1935. While it drew the world's attention for a few days, it passed quickly, but the problem involved has been postponed rather than solved. In order to make clear the character of this crisis, the author recalls the recent historic background.

(3) MARSHAL NEY. Colonel Peck

A short sketch of a gallant soldier, who, after the battle of Waterloo, was tried by the Peers of France and sentenced to death. After 30 years it was decreed, however, that Ney's sentence was irregular and that his titles be restored and a statue be raised.

#### **CAVALRY JOURNAL**

**November-December 1935**

(1) A HORSE CAVALRY NIGHT MARCH TO COMBAT AGAINST MECHANIZED CAVALRY. Colonel Martin

Colonel Martin gives a very interesting analysis of the participation of the 13th Cavalry during the maneuvers at Fort Riley, 10-11 May 1934, and has drawn some important conclusions upon the adaptability of horse cavalry for night operations over broken terrain.

(2) ONE HUNDRED AND THREE FIGHTS AND SCRIMMAGES: THE STORY OF GENERAL REUBEN F. BERNARD. Russell

(3) TACTICAL USES OF HORSE VANS OR SEMI-TRAILERS. Captain Yale  
A coordination of automobile and horse for command and staff duties.

(4) USE OF CAVALRY UNDER MODERNIZATION. Major Harvey  
A discussion of the effects of modernization on the use of cavalry, in  
which the author brings out that organization and equipment of units  
should be based on the probable type of opposition.

### CAVALRY JOURNAL (Great Britain)

January 1936

(1) THE CAVALRY IN FRANCE, AUGUST-NOVEMBER, 1918. Part IX.  
Lieut.-Colonel Preston

A discussion based on actual situations of the actions of the British  
Cavalry Corps in November 1918. Orders and maps are part of the article.

(2) TWO CAVALRY RAIDS OF THE GREAT WAR. Part III. Major  
Sheppard

In this concluding article the author emphasizes the lessons derived  
from the cavalry raids described in previous numbers of the "Cavalry  
Journal."

(3) CHARGE OF 4TH AUSTRALIAN LIGHT HORSE BRIGADE AT BEERSHEBA, 31ST OCTOBER, 1917. Brigadier-General Grant

An interesting article of the mounted attack by the commander of  
the 4th Australian Light Horse Brigade at Beersheba. This mounted  
attack was an example of the use of a mobile reserve to bring a dismounted  
attack to a definite decision.

### CHEMICAL WARFARE BULLETIN

October 1935

(1) SCHOOLS AND THE INDIVIDUAL. Major General Croft

An address delivered by the Chief of Infantry at the graduation of  
the Field Officers Class, the Chemical Warfare School, 22 August 1935.

(2) PSYCHOLOGICAL FACTORS IN LEADERSHIP. Pitkin  
An address given by Walter B. Pitkin, Professor of Journalism, Colum-  
bia University, to Chemical Warfare officers, Second Corps Area.

(3) PROCUREMENT, PAST AND FUTURE. Colonel Scott  
In his address delivered to the students of the Army Industrial College  
on 22 June 1935, Colonel Scott compares the procurement condition of  
1917 with the present procurement and coordination system—the latter  
assuring a quicker mobilization of production.

(4) BRITISH AND GERMAN METHODS OF GAS WARFARE. Brigadier  
General Hartley, British Army  
An address delivered before the Royal Artillery Institution and repro-  
duced from the "Journal of the Royal Artillery."

January 1936

(5) THE GAS ATTACK AT YPRES. Dr. Hanslian

A study by a German authority on chemical warfare, which gives  
an account of the German gas attack at Ypres in 1915. (To be continued)

(6) TOMORROW'S ARMY. Captain Fellers

Captain Fellers brings out in this very interesting article a view of  
a future war. He states that the "Regular Army never faced a peacetime  
assignment as stupendous as the task of developing sound tactical methods,  
and organizations and supply plans to reap the full advantage offered by  
the mechanical and technical genius which is America's." While speaking  
of gas he says that "the Chemical Warfare School should not hold back  
facts which might lead to radical changes or to discredit the effectiveness  
of some particular arm of the service." He recommends more training  
in the use of gas and that "in connection with all our service schools, prob-  
lems should be checked to determine whether or not the school solution  
is possible were gas used." A very interesting article indeed and well  
worth reading.

(7) IT IS LATER THAN YOU THINK. Colonel Herbst

An address by Colonel G.A. Herbst to the Chemical Warfare School on 22 November 1935, in which he says that the "fate of battles is decided not so much by the orders given by the commander, or the disposition of the troops, or by the number of guns and tanks, or by the killed or wounded, as it is by that intangible force called the *spirits* of an organization, which itself is made up of certain qualities of the individuals who compose it; viz., the qualities of self-respect, of comradeship, of discipline and of duty." He then gives a short synopsis of the reorganization of the infantry regiment which is now under way.

Colonel Herbst concludes his address with the following pertinent remarks:

"It is said that there stands in an old English garden a sun dial on whose face is the motto: 'It is later than you think.'

"All the safeguards against the coming of war in this sinful world are crumbling today. Wherever we look, war clouds are on the horizon. There is one element in war and one in peace that, once expended, can never be replaced; that element is time. It is always later than we think; and today it may be very much later. The time to ponder over training and preparation and the best means of getting effective results, is now."

**COAST ARTILLERY JOURNAL**

**November-December 1935**

(1) PURSUIT IN COOPERATION WITH ANTIACRAFT ARTILLERY. Major Chennault

The author has prepared an article in which he relates briefly the measures that were adopted during the World War to secure cooperation between anti-bombardment weapons, viz., pursuit aviation and ground guns, and then speaks of means and methods which could be employed in defense against aerial bombardment today.

(2) THE ELEMENTS OF LEADERSHIP. Major General Kilbourne

This is an extract from an address on "Leadership" given to officers at Fort Mills on the eve of his departure from the Philippine Islands in June 1932.

(3) DEVELOPMENTS IN ORGANIZATION, ARMAMENTS AND EQUIPMENT OF THE COAST ARTILLERY CORPS. Colonel Burgin

**January-February 1936**

(4) THE FIRST ARMY MANEUVER. Major Hones  
See comments under "Infantry Journal."

(5) ORGANIZATION OF GUNS IN ANTIACRAFT REGIMENT. Major Irvine  
The author believes that six fire units, each unit to consist of four guns, are essential for the antiaircraft defense of an objective against an attack by bombardment aviation.

(6) THE FIST IN THE DYKE. Major Mendenhall  
See comments under "Infantry Journal."

(7) SPY AND COUNTER-SPY. Part I. Johnson  
See comments under "Infantry Journal."

**FIELD ARTILLERY JOURNAL**

**November-December 1935**

(1) THE FIRST ARMY MANEUVERS. Colonel Lanza

This article by Colonel Lanza is an account of the Army Maneuvers held during August 1935 in the Pine Camp area, New York, with pertinent comments.

(2) NOTES ON WAR OF MOVEMENT. A digest by Lieut. Colonel Wood

This is abstracted from the article, "Notes sur la guerre de mouvement" contained in the July 1935 issue of "Revue Militaire Francaise." See also, page 119, this issue of "Review of Military Literature."

**January-February 1936**

- (3) THE ROARING GUNS FROM THE SEVEN DAYS TO COLD HARBOR. Colonel Greer

The author makes a comparison of the methods of employment of the artillery of the army of the Potomac and that of the Northern Virginia. He discusses various battles and his conclusions are pertinent.

- (4) THE MOST MURDERING BATTLE—MALPLAQUET. Pratt

An interesting study of the battle of Malplaquet in 1709—interesting because of the singularly perfect balance among the three arms: infantry, cavalry, and artillery.

- (5) THE ARTILLERY SUPPORT OF THE INFANTRY IN THE A.E.F. Colonel Lanza

Colonel Lanza has illustrated in his article the need for some revision of ideas that the artillery is simply an auxiliary arm to be taken or rejected as desired. Neither artillery nor infantry is now independent; they must work together under the direction of a common superior.

**FIGHTING FORCES (Great Britain)**

**December 1935**

- (1) CTESIPHON TO KUT. Lieut.-Colonel Burne

This article is a discussion of the Battle of Ctesiphon, 22 November 1915, in which both commanders (Turkish and British) claimed the victory.

- (2) REFLECTIONS ON NEUVE CHAPELLE, MARCH, 1915. Captain Wynne

A resumé of the battle of Neuve Chapelle, 10 March 1915, in which one German infantry battalion (11th Jäger) was able to hold up 48 British battalions for about 12 hours.

**INFANTRY JOURNAL**

**November-December 1935**

- (1) FIFTY MILLION FRENCHMEN CAN BE WRONG. Captain Lanham  
A very interesting and instructive problem based on the action of a battalion of the French 42d Division in August 1914.

- (2) THE DEATH OF A NATION. Major Pendleton

Major Pendleton has written an interesting article on the objective in war, citing historical examples from the Civil War to prove his point.

- (3) CHEMICAL SECURITY—PART III. Captain Waitt

The author of this article explains several methods of protection against gas under different conditions.

- (4) DAVID OR GOLIATH? Lieut.-Colonel Scammell

A recommendation for the organization of a four brigade division.

- (5) THE BRITISH CAPTURE OF MANILA. Major Landreth

- (6) THE THEORY OF MECHANIZATION. Captain Smith

**January-February 1936**

- (7) THE KITCHENER LEGEND. De Weerd

A short but very interesting article about some incidents in Lord Kitchener's life and the reason why he was sent to the Near East, from which visit it was hoped he would never return to the War Office.

- (8) THE USE OF INHERENT MOBILITY. Major Lee

The author, after briefly discussing the British and French doctrines on the use of tanks, recommends that we follow the French in retaining the tank for the mission for which it was created and borrow from the British to the extent of using the speed, the mobility, and the maneuver power of the modern tank.

- (9) THE FIST IN THE DYKE. Major Mendenhall

Major Mendenhall has written an instructive and interesting monograph on the action of the 7th Machine-Gun Battalion at Chateau Thierry in June 1918.

(10) THE FIRST ARMY MANEUVER. Major Hones

A brief discussion of the five exercises of the First Army maneuver. Major Hones concludes the article with this interesting paragraph: "From a grand-scale tactical standpoint the First Army maneuver was not a success. From the standpoint of real training—and it was designed for just that—it was a grand success. It put soldiers in the field—where they should be—and having put them into the field, it separated the men from the boys in no uncertain manner."

(11) SPY AND COUNTER-SPY. Part I. Johnson

An article which describes the American spy system during the late war.

(12) WAS LONGSTREET A SCAPEGOAT? Lieut. Colonel Sanger

Colonel Sanger defends Longstreet in this article in a masterly style, not only against the traditional charges but also against additional ones, which Dr. Freeman in his study of Lee brings forth.

(13) A LESS EXPENSIVE PROCEDURE. Major Schwien

Major Schwien illustrates by a concrete case the intimate relation existing between intelligence work and the tactical scheme of maneuver. The operations of the American 3d Division from 30 September to 4 October 1918 were selected for analysis. Major Schwien first states what actually happened and then reconstructs the operations with all intelligence sections functioning as they should have functioned.

**JOURNAL OF THE ROYAL ARTILLERY** (Great Britain)

January 1936

(1) "ARE THE WEIGHTS OF SHELL OF THE VARIOUS CATEGORIES OF FIELD ARMY ARTILLERY THE MOST SUITABLE, HAVING REGARD TO THE VARIOUS RÔLES WHICH THE LATTER MAY HAVE TO UNDERTAKE AND THE VARIED THEATRES OF WAR IN WHICH THEY MAY HAVE TO ACT?" By Captain Skentelbery ("Duncan" Highly Commended Essay, 1934-35)

The author concludes this interesting essay with the statement that, "An increase in weight of shell is, in general, accompanied by an increase in efficiency, whether against personnel or material. There appears to be no doubt that the present relations between calibre and weight of shell are 'uneconomical.' The chief disadvantage of increasing the weights of shell lies in the transport problem, i.e., the alteration which might be necessary to certain vehicles and packages and the increased loads: the latter can however be discounted by accepting the reduction in the number of rounds carried and 'writing that reduction off' against the increased efficiency of the heavier shell."

(2) MARCHING THROUGH SINAI. 1799. 1916. Part I. By "Pollaniska"

This article is a description of Napoleon's march across the Sinai Desert in 1799, interspersed with the experiences of the Egyptian Expeditionary Force during their march in 1916, when they followed Napoleon's footsteps all the way across the peninsula.

(3) "TANKS WITHOUT TEARS." A R.T.C. JUDGMENT IN RE "MURUS" v. BODY. By Major Thrupp

The author sketches briefly the story of tanks and shows how they came to be what they are today. He does try to show, however, what they may be tomorrow.

(4) OUR NEGLECT OF WELLINGTON. Lieut.-Colonel Head, Retired  
A study of Wellington, in which the author compares him favorably with Napoleon.

**JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION**

(Great Britain)

November 1935

(1) THE DEFENCE OF THE POPULATION AGAINST AIR ATTACK. Wing-Commander Hodson

An article describing the problems of air raid precautions in England.

(2) THE ATTACKING POWER OF INFANTRY. Captain Clifton

The author, after giving a description of an offensive operation of New Zealander troops during the World War, cites the general lessons derived from it. He speaks of the offensive power of the present organization and recommends an alternative organization.

(3) A NEW DEAL IN TACTICS. Brigadier MacLeod

In this article the author brings out that the attack must be based on the principle of getting in the first blow and making it a "knockout." The tactics of the future should be based somewhat on the idea of the sudden artillery attack of the Great War.

(4) WHITHER THE TANK BRIGADE? Lieutenant Carey

The author states that the speed of the British tank brigade is astounding, that control is instantaneous, and as a whole, the tank brigade is a powerful fighting machine. But it has certain weaknesses, such as the present medium tank, the bridging problem, the fire risk, the air menace, the cost of production and time of replacements in war, and finally the problem of how to obtain sleep and what to do with wounded men. He examines each of them carefully and suggests remedies.

(5) ARMY MANOEUVRES, 1935. Lieut.-Colonel Armstrong

According to the author, two lessons were learned from the British Army maneuvers in 1935, viz., the advantages to be gained by leaving wide gaps between units and the value of surprise. Colonel Armstrong admits that the leaving of gaps is risky but if victory is to be gained, risks must be taken and as a classic example of this cites the capture of Beersheba by one corps. A broad gap was left between the right and left wings of Allenby's Army, a legitimate risk was taken, and a great success was obtained.

**JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION OF INDIA** (Great Britain—India)

October 1935

(1) ADOWA. Major Mullaly

The author recalls the circumstances of the last occasion on which Italy and Ethiopia met in the field. The campaign of Adowa is of special interest to students of military history, particularly of the history of small wars.

(2) THE DARDANELLES CAMPAIGN. Major Westmorland  
A short critical study of the Dardanelles Campaign.

**MARINE CORPS GAZETTE**

November 1935

(1) AFRICA SPEAKS. Colonel Upshur

Colonel Upshur discusses the French and Spanish operations in Morocco during the period of 1923-1926. He states the terrain of Morocco and Ethiopia are similar, and that opposed to the Moroccans was a well-trained, modernly armed European and native soldiery, directed by commanders who employed their forces in accordance with the best tactical principles of modern war and that the Moroccan affair may tell us what may be expected in Ethiopia.

**MILITARWISSENSCHAFTLICHE MITTEILUNGEN** (Austria)

By Major F. During, Infantry

June 1935

(1) DIE ENTWICKLUNG UNSERES KAMPFVERFAHRENS VOM KRIEGSBEGINN BIS ZUR GEGENWART. [The development of tactics in the Austrian Army from the beginning of the World War up to the present.] (1) Major General v. Pitreich, Reserve

This first instalment deals with the principles upon which the fighting methods of the Austro-Hungarian army were based at the outbreak of the World War and consists mostly of extracts from the Field Service

Regulations of that time, and comments thereon. In 1914 the Austrians were at a disadvantage compared with their opponents, the Russians and the Serbians, both of whom had experience of modern warfare. It is true that an Austro-Hungarian attaché in the Russo-Japanese War, Colonel Csicseric, had given full warning of the great extensions of the modern battle both in space and time, and of all the consequences to be deduced therefrom, but these teachings were generally disregarded as not applying to Europe. Consequently the Austrians, trained for war in 1914, as the Prussians had been in 1870, on the principle of getting forward at all costs, had to learn by painful experience what their Field Service Regulations had failed to take account of, and what Russians and Serbians alike had learned first-hand. The offensive was to bring about the decision but the manner in which an attack was carried out had changed. The counter-attack upon which the Austrians' training had been mostly concentrated, did not go according to their rules for after clearing away the enemy's covering troops they invariably found him entrenched.

(2) UBER ARTILLERIEVERWENDUNG UND SCHIESZTECHNIK IM BEWEGUNGSKAMPFFE. [Employment of artillery and its firing technique in mobile warfare.] Major Zuber

The author discusses first the new factors in warfare and their probable effect on the conduct of operations. He then works out how the artillery in the future will carry out its various tasks.

#### July 1935

(3) DIE ENTWICKLUNG UNSERES KAMPFVERFAHRENS VOM KRIEGSBEGINN BIS ZUR GEGENWART. [The development of tactics in the Austrian Army from the beginning of the World War up to the present.] (II) Major General v.Pitreich, Reserve

In this second instalment General v.Pitreich discusses first the influence of artillery upon methods of attack, and second, the methods of defense and position warfare. He points out the causes in the World War which contributed to a complete change in the character of the battle, and shows how the artillery had to bear the brunt of the fire-fight. It had on the one side to batter down the defense, and on the other side to prevent this from happening by counterbattery work. The breakthrough battle of Gorlice is then described in some detail as being the origin of all later battle procedure, not only in battles of this nature, but also generally in position warfare and in mobile warfare. At Gorlice in May 1915, it is claimed that for the first time overwhelming artillery fire completely overcame the resistance of the defense, before the infantry attacked the position.

The author then points out that it was not position warfare as such which was responsible for the long duration of the Great War, but the long-enduring equality in strength of the opposing forces. He analyzes the line defense, the cooperation between infantry and artillery in defense, the eclipse of the rifle in defense by the machine gun, and finally the defense in depth.

(4) DAS DEUTSCHE WEHRGESETZ 1935. [The German defense law.] Field Marshal Schäfer

The new German Defense Law was published and became effective on 21 May 1935. Its name was changed from National Defense Ministry to National War Ministry, which includes the existing ministry for the army and navy and also the air force. A general obligation is introduced to serve in the national forces, but for the personnel of the navy and for the flying personnel of the air force voluntary long service is retained. In peace this obligation to serve lasts from the age of 18 to the age of 45. "In war every German man and every German woman is obliged to serve the Fatherland." Every spring all men in their 21st year will be called up either for one year's active service or for passing, after probably eight weeks' training, into the Auxiliary Reserve. Up to their 21st year men will not be called up for military service, but only, in accordance with a law not yet issued, for National Labor service, which is similar to our Civilian Conservation Corps. Those serving their one year in the army

may be permitted to volunteer for a second year, and noncommissioned officers will generally serve 12 years. The one year of actual service applies also to all fortress and harbor personnel of the navy, and to all ground personnel, signals and antiaircraft artillery of the air force. After their one year of service all men pass into the Reserve, where they remain from 22 to 35. From 36 to 45 they remain in the Landwehr and at 46 they pass into the Landsturm. Those in the Reserve, i.e., those who have done their year with the colors, those in the Auxiliary Reserve, i.e., those who have served for eight weeks instead of one year, and those in the Landwehr, i.e., those who have finished their time in either of the Reserves, are all classed together as belonging to the Army, but on the Furlough List. The Landsturm are not included.

The writer now discusses how the re-introduction of conscription in Germany will work out as regards the strength of the German Army. The first class to be taken for a full year's training consists of those who were born in 1914. Those who are already 22 are exempt from this, but they and the other classes back to those born in 1910 will do eight weeks training and be passed into the Auxiliary Reserve.

Assuming that 300,000 recruits are required every year for the army after the needs of the navy and air force have been satisfied, by the end of 1939 Germany will possess over a million fully-trained men, viz., the classes of 1934-5-6-7. It will, however, have at that time no other fully-trained soldiers to call upon except the veterans of the World War, who will be at least 42 years of age and finishing their time in the Landwehr, while the majority of them have already passed into the Landsturm. In the German field army the fourteen non-conscription years which have passed since the Treaty of Versailles have caused a deficiency in trained soldiers of over four million men. This army of untrained men causes at present a deficiency in the Reserves, which will pass later to the Landwehr. Only when these fourteen untrained classes have disappeared into the Landsturm will the German field army reach its full strength, so as to be comparable in numbers with the armies of the "conqueror" nations. This will happen forty-five years after the last class (the 1909 class) which has just escaped conscription, viz., in 1954, which will therefore be a remarkable year. Thus the effect of the Treaty of Versailles on the strength of the German field army will be felt for the next twenty years, and during that time of development a strong protective air force is indispensable.

#### August 1935

(5) DIE ENTWICKLUNG UNSERES KAMPFVERFAHRENS VOM KRIEGS-BEGINN BIS ZUR GEGENWART. [The development of tactics in the Austrian Army from the beginning of the World War up to the present.] (III) Major General v.Pitreich, Reserve

The author discusses in this instalment the distribution of troops in depth, its effect upon infantry methods in defense and upon the attacking infantry.

(6) DIE REITERATTACKE AUF INFANERIE BEI TRYNCZA AM 10. OKTOBER 1914. [A cavalry charge upon infantry, 10 October 1914.] Captain Scheff

The author describes how in October 1914, a squadron of the Austrian 6th Dragoons, having a strength of 90 men, acting as an advance guard, charged two Russian infantry companies on the march. The squadron had five casualties, while the Russian losses were 270 men in prisoners alone. The entire show was over three minutes after the Russians were first seen by the cavalry.

(7) WECHSELWAFFEN FÜR DIE INFANERIE. [Alternate weapons for the infantry.] Colonel Rendulic

Colonel Rendulic states in this article that inasmuch as in the attack infantry has chiefly to deal with concealed stationary targets and the destruction of artificial cover and obstacles, while in the defense it has to deal with advancing and unconcealed targets, it is clear that the individual weapons for the two tasks must have different properties. The multiplicity of present-day infantry armament is therefore certainly justified,

but for obvious reasons it must be kept down as low as possible. All nations are striving to give their infantry the weapons they need—for the attack, infantry guns, trench-mortars, grenade throwers, automatic pistols; for the defense, antitank guns, antitank rifles, heavy machine guns. The question whether the infantry of today is adequately equipped for its tasks is answered in the affirmative regarding defense, that is, after the antitank question has been satisfactorily solved, but regarding attack the answer is in the negative. The reason for this is that the infantry's chief weapon up to now, the machine gun, develops its real strength in the defense. Hence attacking infantry has nothing equally powerful with which to oppose the defenders' most effective weapon. The attack cannot hope to even things out by putting in a greater number of machine guns, because, where a weapon is little suited to a task, increasing its numbers is a very uncertain way of improving matters. On the other hand the trench mortar and the grenade thrower are most effective in the attack, and are to be regarded as the infantry's attacking weapons *par excellence*. The most radical remedy is to abolish the difference between artillery and infantry and to create units having the weapons of both. As a matter of organization this is not too difficult, but tactically there are grave objections, and also especially from a training point of view. The infantry gun is a special weapon for use against visible targets, and with only small effect against targets under cover. The trench mortar, on the other hand, can do in the attack almost all, and in many respects considerably more than what the infantry gun is used for, and has not its disadvantages. Hence, it is not the infantry gun, but the trench mortar, which should be considered as the coming weapon for the increase of the power of attacking infantry. Moreover, it is of special importance that the trench mortar, being very simple, can be taught in a very short time to men trained in the heavy machine gun. The same personnel should be trained in both heavy machine gun and trench mortar, and armed with both weapons respectively for defense and attack.

**September 1935**

(8) VOR ZWANZIG JAHREN: DER KRIEG GEGEN SERBIEN 1914/15. EINE OPERATIVE BETRACHTUNG. [Twenty years ago: A strategic study of the war against Serbia, 1914-1915.] Colonel v. Wittich, Reserve

The author states in this article that it was a popular belief, during the War and even after, that the Austro-Hungarian offensive against Serbia in 1914 was a failure. The campaign, after initial disappointments, promised a great success, but ended in an annihilating defeat, in which the Austro-Hungarian losses, especially in prisoners, far exceeded those of the Serbs. Based on the above, the prestige of the monarchy, its army and leadership, suffered considerably. But after twenty years, Colonel v. Wittich points out, one has a better perspective and understanding and he produced evidence to show that the campaign of 1914 was only a temporary victory for the Serbians, inasmuch as the victorious second campaign against Serbia in 1915 was based upon the results of the first and was really the harvest of the seed sown there.

(9) DIE ENTWICKLUNG UNSERES KAMPFVERFAHRENS VOM KRIEGSBEGINN BIS ZUR GEGENWART. [The development of tactics in the Austrian Army from the beginning of the World War up to the present.] (IV) Major General v. Pitreich, Reserve

The author deals this month with the possibilities of avoiding a position warfare, with post war development of aircraft, tanks (including a short account of Cambrai) and with gas. (To be concluded)

**MILITAR-WOCHENBLATT (Germany)**

By Major G.J. Braun, Infantry

18 May 1935

(1) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. DIE EINWIRKUNG DER RUSSISCHEN FESTUNGEN AUF DIE OPERATIONEN IN OSTPREUSSEN 1914/15.

[Twenty years ago: The utilization of the Russian fortresses during the operations in East Prussia, 1914-1915.] Major General Klingbeil

This article describes the influence of the Russian fortresses on the Eastern Front during the operations in East Prussia in 1914-15.

This series of fortresses along the Russian frontier caused the Germans to discontinue some of their operations and fall back to regain an operating flank. The fortresses served their purpose for the Russians, functioning as bases for operations for the field armies in their advance and retreat. They camouflaged the concentrations and shifting of troops and slowed down the German advance causing the latter to sacrifice time, men, and material in their powerful attacks to conquer them.

(2) NOCH EINMAL PFERD UND MOTOR. [Horse and motor.] General von Poseck, Retired

The author reviews the functions and value of cavalry in war due to its mobility in reconnaissance and security, occupation of advanced points, security of the front, flanks, and rear of the infantry, pursuit, covering retreats, and as a mobile reserve. In his opinion the next war will be a war of movement demanding speed and mobility due to improved roads and mechanical contrivances. He favors a horse cavalry with mechanized weapons capable of operating anywhere.

Armored trucks cannot function on all terrain. They possess great march speed and great mobility and in their own spheres are superior to horse cavalry.

Horse cavalry, although it has less marching speed, possesses greater mobility over all terrain. It is indispensable for close reconnaissance and punitive wars. The cavalry only locates moving artillery targets; it is protected by its own antitank weapons from attack by armored cars and it need never attempt to charge into the fire of infantry. In this manner the cavalry mobility will permit it to attack, withdraw, and attack elsewhere.

Both the horse and the mechanized forces have their advantages and disadvantages and best results come from cooperation of both. The cavalry of the future war will be a combination of both. The author reminds his readers that he is not alone in these opinions and refers to Major General Guy V. Henry, the American authority, as concurring in his beliefs.

Referring to the French Major Poupel, who is an authority on tank warfare, the author reminds the reader that the tank has been overestimated and requires either horse cavalry or motorcyclists to assist in removing obstacles and reconnoitering locations inaccessible to the tank. Also the tank requires infantry to hold any ground it captures or to combat antitank weapons. The author also refers to articles by the American officers, Lieutenant Colonel B. Lentz and Major R.B. Trimble.

(3) FRANZÖSISCHE UND ENGLISCHE GEDÄNKEN ÜBER DEN LUFTKRIEG. [French and British ideas on aerial warfare.] (II) Colonel Nagel, Retired

This article reviews the opinions of various European military authorities on the cooperation of the army and navy with the air service during war. They all agree that the air service must conduct repeated strong attacks on hostile vital and sensitive points at the outset of the war and that the army and navy must drive toward these points rapidly, thereby increasing their susceptibility to air attack. In this manner industrial centers can be destroyed or so disrupted in their functioning as to cease or decrease necessary production for their armed forces.

(4) DERZEITIGE KAMPFWAGENEIGENSCHAFTEN UND WIRKSAMKEIT DER ABWEHRWAFFEN. [Present tank characteristics and the effect of antitank weapons.] By "St"

This article recalls the paper controversy which has been going on for 16 years relative to the possibilities of tanks and antitank weapons. The author classifies tanks in five categories: very light tanks, light tanks, medium tanks, heavy tanks, and very fast tanks, giving their armament and speed. He then explains how their dimensions make them visible throughout as targets once they appear on the scene of battle. Modern antitank weapons can pierce these vehicles as they approach, although the

heavier the antitank weapon the more cumbersome and visible it also becomes and therefore must be emplaced farther to the rear to be effective. While improvements to both tanks and antitank weapons are constantly appearing, the vulnerability of the tank remains constant.

25 May 1935

(5) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. ZUM EINTRITT ITALIENS IN DEN WELTKRIEG. SALANDRA GEGEN BÜLOW. [Twenty years ago: Italy's entrance into the World War. Salandra versus Bülow.] Dr. Ostwald

This article discusses the controversy between Count von Bülow and the Italian Premier Salandra in their memoirs as to the possibility of retaining Italy on the side of the Central Powers during the World War, had Austria offered Italy the Trentino and declared an autonomy for Trieste.

(6) WER BLEIBT SIEGER—KAMPFWAGEN ODER ABWEHR? [Tank versus antitank defense?] (I) By "St."

The author gives 500 yards as the distance at which the armor plate of a tank can be pierced. He describes the maneuvers of the tank at this range and the assistance given by neighboring tanks to overcome the antitank defense. According to the author, three minutes are required to conclude the duel between tanks and antitank weapons, providing antitank weapons fire until the last moment, which he doubts.

Tanks whose armor can be pierced at 1,000 yards are at a disadvantage. The tank offers a large visible target, whereas the antitank gun is a small target difficult to locate. The advantage increases for the antitank weapon as the tank approaches.

The present medium and heavy tanks, protected by 20-25-mm. armor plate, are fairly safe against present antitank weapons.

(7) ZUGWERFER? [Platoon mortars?] Brandt

This article contains a recommendation for more trench mortars per battalion. The author goes as far as suggesting three 47-mm. mortars per platoon, three 65-mm. mortars per company, and four 81-mm. mortars per battalion. He takes into consideration the personnel, ammunition, transportation and communications, etc., required for same. The author realizes the objections to the above but states that it is an established fact that during peace time there is a great demand for mobility and speed, whereas in war results count.

(8) SCHNELLIGKEIT? [Speed.] By "Gr."

The author states that last April in East Prussia, a 750-mile endurance test of motorized vehicles disclosed that only one-third of them reached their destination. This fact, coupled with the information that France is only motorizing one-fourth of its infantry divisions, gives food for thought. Excessive motorization may be an error! The author considers the use of fast motorized units for reconnaissance screens and their mobility in a decisive campaign, but also considers the vulnerability to air bombing, long-range fire, and observation.

4 June 1935

(9) SEEGEWALT IN DER GESCHICHTE. [Sea power in history.] (III) Vice Admiral Neuer, Retired

The author presents an excellent review of the numerous occasions, dating from the period of discovery to 1815, when decisions were made by sea battles as to which nation of the world should dominate the commerce of the world and which should possess the colonies necessary to further this domination. This review is by periods and covers the commercial and political aspects of these struggles.

(10) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. DIE WESTRUSSISCHE FESTUNGEN IM SOMMER- UND HERBSTFELDZUG 1915. [Twenty years ago: The West Russian fortresses during the summer and fall campaign of 1915.] Major General Klingbeil

The author states that a wrong impression as to the value of these fortresses may be derived, due to their sudden and rapid capture. He tells of the influence these great fortresses and systems of fortifications had on the German campaigns and on the Russian retreat from Poland. These

fortifications delayed the decisive operations on the Eastern Front and required the withdrawal of many troops from the Western Front to overcome them.

(11) DER KÄMPFER UND DIE MASCHINE. [The soldier and the machine.] General v.Eimannsberger

General v.Eimannsberger in this article depicts the antagonism and awe to a new mechanical device when it appears in the military service. He shows that even though man has utilized mechanical devices or machines in warfare for hundreds of years, this awe or fear of a new weapon disappears as soon as the troops become familiar with its operation and characteristics.

(12) WER BLEIBT SIEGER—KAMPFWAGEN ODER ABWEHR? [Tank versus antitank defense?] (II) By "St."

As mentioned in a previous article a race to increase the weight of the armor for tanks has started. The author carefully reminds his readers of the limit of such increase because the resultant weight and size would make transportation difficult over light bridges and light railroad facilities, etc. This desire to double the strength of the armor will naturally give an unproportional increase in tonnage of the vehicle so as to curtail its mobility. Should only the vital parts receive the increased armor, then a decided advantage would be created for the tank. There would be no difficulty in designing a gun capable of penetrating this increased armor, but this would require a larger gun, make the antitank weapon more visible, and exceedingly heavy, therefore less mobile.

In the early stages of a fight this antitank weapon could be used in the front lines while the enemy is still in the act of making contact. In the defensive position after hostile contact has been completed these guns are withdrawn to the rear lines for eventualities and the infantry to its front must be provided with some antitank weapon. The heavier gun which was withdrawn possessed greater range than the rapid firing weapon supplied the infantry. Antitank weapons which normally would remain silent should be brought up to the front lines at the proper time to deliver unexpected deliberate fire against approaching hostile tanks. In summing up, the author believes there is no danger of either the tank or antitank weapon possessing a decided advantage at present or in the near future. They constitute an even bet and the side making the better application of its weapon will win.

(13) WORAN LIEGEN DIE SCHWIERIGKEITEN DER HEUTIGEN EINHEITSGRUPPE? [Where are the difficulties of the modern combat squad?] Brandt

A short discussion as to the number of personnel and their armament required to produce a small and effective combat unit.

The proposed combat squad must be organized differently from the old light machine gun squad, which consisted mostly of ammunition carriers. The author feels that two men per light machine gun should suffice, the gun carrier and the ammunition carrier. Extra bandoliers of machine-gun ammunition can be given to the riflemen provided they are not carrying grenades or grenade throwers.

The main desire is to permit the riflemen to enter combat with their hands free for use and not carrying loads and still provide effective firepower to the squad.

11 June 1935

(14) DER VERRUFENE RÜCKZUG. [The despised retreat.] Leppa

One order that commanders from time immemorial dread to give is that for the retreat or withdrawal. This false pride has deprived many a commander of the opportunity of a voluntary withdrawal to a site much more favorable to success than the one stubbornly occupied. Only great commanders, such as Frederick the Great, had the courage to order a withdrawal from battle when they saw that a decisive victory could not be gained. This occurred in 1757 at Kolin when Frederick realized the chances for victory were slim, and he withdrew from Bohemia and threw his army against another enemy at Rossbach whom he annihilated, and finally decisively defeated the victors of the battle of Kolin in the great battle of Leuthen. A leader with less courage of his convictions would

have remained engaged at Kolin to the point of exhaustion, with the result of the capitulation of the Prussian Army.

A great leader uses the withdrawal not as a sign of weakness, but as a means to choose his own terrain over which to fight.

(15) SPERRVERBÄNDE. [Organization of a unit to establish barriers for armored vehicles.] Hoffmann

Military leaders of all modernly equipped countries realize that motorized antitank units are unable to solve independent combat missions unless they have other units attached. The rapid progress of motorizing modern armies will certainly create missions at the outset of war necessitating certain independent missions for the motorized antitank units. Assuming that the main terrestrial reconnaissance will be made by hostile reconnaissance detachments composed either of motorized cavalry or armored car units, it can readily be visualized that the countermeasures must be taken to prevent this or at least make it extremely difficult.

One of the solutions open for the defense would be the denial of a certain sector to the enemy, thus preventing the penetration by his motorized vehicles. The breadth and nature of such a defensive barrier will depend on the terrain, the time available, and local conditions. At the outset of hostilities this will constitute the blocking and security of the frontier and all avenues of hostile approach. Natural terrain features, such as mountains and streams which afford obstacles to the enemy, will make this task easier. Attached engineers can assist by destroying bridges, constructing road barriers, and strengthening natural local obstacles. All these obstacles or barrier locations must be manned by antitank units.

It is just as essential that the defense carry on reconnaissance as it is for the offense. Therefore the defense should be provided with armored reconnaissance vehicles, for example, machine gun trucks for the protection of the advance of the barrier constructing units. They can also be used for reconnaissance of terrain or against the hostile scouts to drive them off.

The author recommends the following organization for the antitank unit required to create barriers against hostile motorized units:

Staff and intelligence platoon

3 companies of 3 gun platoons per company and 3 guns per company and a heavy armor-piercing machine gun on self-propelled mounts

1 motorized platoon of engineers

1 motorcycle company

2 platoons of light combat cars of 6 machine gun trucks.

Mobile units organized as shown above probably will be under control of the higher command. In addition to their regular mission, they could also be used for the protection of flanks and rear of an army. In the advance, delaying actions or withdrawal can be assigned important missions. They could also be used to cut off hostile tank units which penetrated for some depth in the army front or for the defense of tactically important points in rear of the front lines.

The author states that it is immaterial whether these units be organized in peace time or assembled after war has been declared. The editor of the "Militär-Wochenblatt," in his remarks, states that the unit recommended is inadequate and that any units improvised after war is declared become an experiment which is dangerous.

#### 18 June 1935

(16) DER KAMPF AUF DER INNEREN LINIE IN OSTPREUSSEN UNTER NEUZEITLICHEN VERHÄLTNISSEN. [The combat along interior lines in East Prussia under modern conditions.] (I)

The forceful experiences of the World War greatly influenced the development of military technique. There has been some criticism that the tactical and operative methods of leadership have not kept pace with these developments. In order to see whether this is true the author has selected the variable mobile warfare of East Prussia in August 1914 as

a test. He assumed that the German Eighth Army and the Russian First and Second Armies were of the same strength and had the same missions as existed at the outbreak of the war in 1914 but were modernly equipped. He assumed that the Russians and Germans had utilized the mass of air forces and armored units.

The author discusses the need of antitank defense along the border and of units organized to construct barriers along all frontier roads of hostile approach and garrisoning the same with mobile antitank weapons as is done by France, Poland, Russia, and Czechoslovakia on their borders. The author then takes up the battle of Gumbinnen and shows how this battle would have been fought today under modern conditions.

(17) EINE MOTORISIERTE ARMEE FÜR DEN BEWEGUNGSKRIEG. [A motorized army for mobile warfare.] Dr. Bischlager

Commenting on an article in "Française Militaire" by General Camon of the French Army, in which the latter recommends the organization of a modern motorized French army, capable of combating the new motorized German Army immediately after the declaration of war, Dr. Bischlager states that General Camon overestimated the possibilities of a German 100,000-man army.

A motorized army is necessary regardless whether the war is an offensive campaign into the enemy country or constitutes a defense of one's own fortified frontier. The former is by far the better method, thus protecting the homeland.

Motorized divisions which could be below the strength of the present divisions should be able to move on roads at a rate of speed greater than 14 to 18 miles per hour. All that is required is the entrucking of the infantry personnel, the artillery keeping pace with them. Horses should not be included in such divisions as their entrucking is too slow.

On the day of the battle, motorized divisions can move from a great distance against the hostile flanks and rear. They can also constitute large combat reserves ready to be quickly moved against any threatened point. In addition to the motorized division, "ultra rapid" divisions should be organized to serve as antennae for the motorized divisions.

These "ultra rapid" divisions should have the following missions: (a) Conduct major raids, provide reconnaissance and security; (b) Rapid possession of vital points and pursuit after the battle.

The first mission requires such great rapidity that it can only be performed by motorcycle units. Especially designed armored cars increase the combat strength of the motorcycles.

Even for the second mission, it is necessary to use units which are faster than the track-laying vehicles.

The old cavalry is something of the past—the horse cannot appear on the battlefield any more.

These "ultra rapid" units must not be too big, otherwise they become unwieldy.

In summarizing, the author states that the countries bordering Germany have solved their preparedness problem by motorization and that this motorization constitutes a new weapon of unheard combat power.

(18) KANONEN-JAGDFLUGZEUGE UND TAKTIK DES LUFTKAMPFES. [Cannon aircraft and tactics of air combat.] Lieut. Colonel Feuchter, Retired

The author discusses the experiments of installing cannon on pursuit aircraft which fire either through or in front of the propeller arc. The explosion of the projectile of this cannon will destroy that part of the hostile plane which is being hit and cause a crash or forced landing whereas, machine-gun bullets or H.E. fragments from antiaircraft guns, unless they hit vulnerable spots, cause no great damage.

25 June 1935

(19) PANZERVERBÄNDE IM ANGRIFF. [Mechanized units in attack.]

The unknown author advocates a combination of horse cavalry and mechanized units.

(20) DER KAMPF AUF DER INNEREN LINIE IN OSTPREUSSEN UNTER NEUZEITLICHEN VERHÄLTNISSEN. [The combat along interior lines in East Prussia under modern conditions.] (II)

This is a continuation of a previous article, in which the author discussed the battle of Gumbinnen fought under modern conditions. In this article the author does the same with the battle of Tannenberg.

(21) NACH- UND ABSCHUBTRANSPORTE AUF DEN EISENBAHNEN IM WELTKRIEG. [Supply and evacuation by the railroads during the World War.] Major Kretzschmann, Retired

The vast amount and the diversified supplies of a modern army makes careful organization for the receipt and distribution of supplies imperative. The supply and evacuation service must be flexible to be able to adjust itself to variable combat situations. Regulating agencies must control the supply and evacuation traffic between forwarding depots and distributing points so as to prevent any jam in this service. The close cooperation of the rail service with the headquarters, service of supply, and the military railway authorities is essential for flexible, rapid, and adequate service to the combatant forces.

4 July 1935

(22) DER WELTKRIEG IN AMERIKANISCHER BELEUCHTUNG. [The World War from the American viewpoint.] (I) By v.B.

This article contains an excellent commendatory review of William D. Puleston's book "High Command in the World War." The author refers to it as one of the few books of the World War, its causes, conduct, and settlement, in which the author writes with extreme frankness and honesty without being biased by idealisms, hatreds, etc.

(23) ZUR "TRAGÖDIE DES UBOOTKRIEGES." [The tragedy of submarine warfare.] By Rear Admiral Spindler, Retired

The author takes exception to Captain von Waldeyer-Hartz's views relative to the use of the submarine by Germany during the World War as expressed in his book, "The War on Commerce by Submarines." Waldeyer-Hartz advocated a stern unrestricted warfare on all merchant ships supplying the Allies with war materials and believed that the war was lost because Germany backed down because of America's protests. The author agrees with Admiral v.Tirpitz, who wrote a letter of warning to the Chief of the German Admiralty, Admiral v.Pohl, in which he said: "The submarine war, without the declaration of a blockade as recommended by the Naval staff, will in my opinion, effect the neutrals far more than a regular blockade and for that reason is far more dangerous politically. The war experiences to date have demonstrated that Germany must have more consideration for the commercial interests of the neutrals than is required of England." The author in his article defends the consideration of neutrals by Bethmann Hollweg and states that if Germany had had sufficient number of submarines she might have effectively established a blockade in 1915.

11 July 1935

(24) ITALIEN GEGEN ABESSINNIEN. [Italy versus Abyssinia.] Colonel<sup>1</sup> v.Xylander, Retired

In this article the author covers in detail the mobilization of the Italian Expeditionary Force to Ethiopia. He lists the military units mobilized by their official designations, recruiting locality, date of mobilization, names, age and experience of their commanders, etc. The 1911, 1913, 1914 classes alone furnished about 600,000 men. The number of men mobilized from the 1912 class is not known. Special units, such as 4 squadrons of fast armored cars, totalling 80 cars, were designated for African service. In addition to the mobilization in Italy, two militia legions were mobilized in Libya.

Colonel v.Xylander also describes the movement of the troops to Eritrea and Somaliland with their animals and paraphernalia. This also includes the movement of Egyptian laborers by rail (to save canal shipment costs) to Port Sudan to be reloaded into transports for transhipment

to Eritrea and Somaliland. He also discusses the expeditionary commanders and their military background, the air service, and medical service.

(25) DER WELTKRIEG IN AMERIKANISCHER BELEUCHTUNG. [The World War from the American viewpoint.] (II) By v.B.

In this second and concluding instalment the author calls attention to the especially excellent manner and impartiality with which Puleston commented on the Allied military leaders and their policies.

(26) DER PANZERKRAFTWAGEN-SPÄHTRUPP. [The armored car reconnaissance detachment.] (See abstract, page 30)

(27) NEUE GEDANKEN DES AUSLANDES ÜBER DAS EINHEITSFLUGZEUG. [Latest foreign ideas on an "all-purpose" plane.] Lieutenant Feuchter, Retired

The idea of constructing an airplane capable of performing all military missions will persist as long as military aviation exists. Such a plane would simplify training of flying and technical personnel, spare parts, supply, etc., and permit mass production.

At the outbreak of the World War the aviation missions were so few that it was thought then that a single type would suffice for all purposes. Military aviation developed so rapidly that definite demarkation developed in use calling for different type of craft for each special use.

The cost of maintaining so many different types revived the idea of one plane capable of performing all functions. The British developed an "all around plane" for colonial service which by slight alterations could be used for long distance reconnaissance, for bombing, etc.

These planes would be at a disadvantage against a modernly equipped opponent, being slightly antiquated.

General Douhet, the well known Italian authority, who sponsors the idea that aviation should carry on all offensive operations and that ground troops and the fleet are only to protect the frontiers against invasion, has come forward with the idea that an "all around plane" could be constructed using the same type ship but different power, say 1,500, 3,000, 6,000 H.P. His ideas have influenced aircraft construction in most foreign countries.

The French "multiplace de combat" plane is a step toward the development of an all around plane in France. In general the specifications for such a plane are twin motored with a total of 1,200-2,000 H.P. power plant, a speed of 186 miles per hour, a cruising radius of 620 miles, and capable of carrying about 500 pounds of bombs.

The well known Italian Colonel of Aviation, Armedeo Mecozzi, does not go to the extreme of having one plane serve all purposes. He believes that special types are necessary for special missions but believes the number of these special types should be kept at a minimum. He differs with General Douhet's twin motored bomber and the French "multiplace de combat" plane, believing in a single motored three-seater offensive plane type but not to mistake this with the attack plane of the United States (which is designed for action against ground troops and tanks). He believes in lighter bomb loads and construction of water-tight compartments in the body of the plane for service over the sea.

Colonel Mecozzi is of the opinion that an all-purpose plane could be used:

- (a) As a bomber taking due consideration of its limited cruising radius.
- (b) As an attack plane capable of combating all but pursuit aviation and capable of defending itself against this type.
- (c) As a reconnaissance plane for close and distant reconnaissance.
- (d) For attack in flights deep in hostile territory; and
- (e) To combat hostile bombing formations with time bombs and heavy machine guns.

18 July 1935

(28) DIE AMERIKANISCHEN FLOTTEMANÖVER 1935. [The American naval maneuvers of 1935.] Vice Admiral Groos, Retired

An account of the American naval maneuvers which were conducted on the North Pacific during 3 May and 10 June 1935.

(29) **STIMMUNG UND STIMMUNGSBERICHTE.** [Morale and morale reports.]  
General Reinicke, Retired

An article describing the importance of high morale in combatant troops and the importance that the condition or degree in which it is possessed by the troops is accurately reported to the high command. The author also covers such features that tend to raise morale when troops come out of the line for their rest and training period.

(30) **DIE GELÄNDEBESPRECHUNG.** [Discussions of terrain.]

The author emphasizes the need for more training in the evaluation of terrain by officers and noncommissioned officers. This inexpensive training of commanders to select terrain for outposts, location of guns for antiaircraft and antitank defense, suitable ground for defense and attack can be combined with the practice of issuing oral orders on the ground for the lower units.

(31) **ÖBERSTLEUTNANT PERRÉ, HAUPTMANN LIDDELL HART—UND WIR.** [First Lieutenant Perré, Captain Liddell Hart—and the Germans.] Captain Gerhard

The author, by reference to Perré's previous articles in the "Militär-Wochenblatt," reviews the French lieutenant's ideas on the utilization of tanks as an offensive weapon and the defense against them. In a similar manner, by quotations from previous writings, he reviews the ideas of Captain Liddell Hart on mechanization. In his comparative discussion the author enumerates the reasons which actuated France to resort to tanks and motorization:

- (a) The hope for military success as the result of rapid transfer of troops from one locality to another in the fighting power of their tanks.
- (b) Security.
- (c) Wealth in gold, allies, and raw materials.
- (d) Excellent roads and road net in Western Europe.

The author states that Germany is compelled to resort to the same weapons (but in limited degree due to lack of wealth) since her neighbors on each side are similarly equipped with mechanized and motorized forces. They feel they must overcome the numerical superiority of their neighbors by quality, and exceptional organization and coordination of all their fast moving forces as a reserve.

Germany, the author states, in consideration of the two fronts must maintain and utilize motorized and armored units as (a) a means of transport for reserves; (b) for terrestrial reconnaissance and to augment air reconnaissance; (c) to augment the cavalry reconnaissance of the infantry and cavalry divisions; (d) for use in cooperation with other combatants in the breakthrough; (e) to serve as fast mobile defense weapons.

(32) **JAPAN UND SOWJETRUSZLAND.** [Japan and Soviet Russia.]  
Major Welisch, Retired

An account of Japan's Far Eastern aggression, her acquisition of Manchuria, and the forced submission of the Chinese to the Japanese military might. The author refers to the failure of the League and world powers to come to China's assistance as agreed upon. He also explains how the possession of the Eastern Railroad has become a problem which involved Soviet Russia and has cast war clouds over the Orient. In the opinion of the author, the unimpeded aggression of Japan not only threatens the Soviet influence in the Far East, but also that of England and the United States.

25 July 1935

(33) **DAS NACHRICHTENTECHNISCHE PROBLEM IN DER NEUZEITLICHEN KRIEGFÜHRUNG.** [The communications problem of modern warfare.]  
Colonel Fellgiebel

Communication technique has been greatly changed since the World War. The improved use of cable and the development of the automatic telephone, the improvement of the telegraph net and radio, especially the two-way conversation, have given this branch of the service a new value to the commander.

It is impossible to control fast modern mechanized and motorized units by the old communications equipment. The author gives no solution for this problem but states that modern technical skill will soon solve the problem. He also feels that the problem of secrecy in communications is far more difficult now than in 1914, due to the enormous telephone network in Europe and the powerful amplifiers in existence today. Modern telegraph and telephone systems encircle the globe and can not only serve but also harm a commander, as it is almost impossible to restrict their use. Similarly the broadcasting radio which reaches almost every home or community can disseminate information and propaganda not only for home consumption but also to neutrals and enemy country but this also can be reversed by the enemy. Aviation, navigation, and ultra rapid motorized vehicles have accelerated the dissemination of orders and information.

(34) DIE STRATEGISCHE FERNAUFLÄRUNG DER LUFTWAFFE. [The strategical reconnaissance by aviation.] Colonel Nagel, Retired

In this article the author has gleaned the high points from the articles by the Italian Comm. Barba, "The Strategical Reconnaissance," which appeared in "Rivista Aeronautica" in November 1934, and that by General Armengaud, "The Reconnaissance Against an Enemy by the Aviation and the Operations of the Army," in the "Revue Militaire Francaise," April 1934.

The mission of strategic reconnaissance is the locating of vulnerable hostile objectives and determining how essential these are to the enemy. The armed forces alone do not indicate the strength of an enemy. It is most important that his production, transport, etc., be observed. Excessive activities about harbors or warehouses in manufacturing districts or in the transportation service can indicate hostile preparations and intentions long before troop activities start. Defense activities in the air also indicate an effort to prevent observation of certain areas.

Night reconnaissance has become exceedingly valuable since most troop and supply movements are now made under cover of darkness. Close check of traffic on roads and railroads in excess of normal movement, noting the direction of the movement, may give advance notice of an impending hostile observation.

Observation of harbors and bases noting movements from the warehouses to the ships indicate a contemplated move. Once the ships leave the composition of the fleet, direction of movement, etc., must be reported.

The author describes in a limited way the method of assigning aviation for this reconnaissance to economize on planes and hours required for same. He favors flights of three planes for security in performing their missions. Since hostile pursuit aviation will be the greatest danger, these reconnaissance ships must be fast and well armed. The reconnaissance ships can land behind the hostile lines and drop off or pick up their agents or can drop the agent, who is equipped with carrier pigeons, by parachute.

(35) EIN FOLGENSCHWERER ENTSCHLUSZ. [A momentous decision.]  
(I) Bischlager

In this article the author relates the events from 20 to 23 August 1914, when the German First, Second and Third Armies relentlessly moved through northern France crushing all French and British resistance. He refers to the pre-war French teachings to meet such an anticipated advance whereby the Allies were to cut off the German right flank, driving them into the sea.

The impetuous, crushing German advance as stated before, eliminated all opposition with heavy losses and panic to the French forces. The French Fifth Army which was about to be surrounded was in precarious position. General Lanrezac called a council of his officers and expressed his intentions to withdraw before the army would be surrounded and forced to capitulate, as in 1870 at Sedan. This suggestion was met with hostile opposition by followers of Grandmaison who believed they could break through and divide the German Army. General Lanrezac denounced them, declaring that the French Fifth Army would retreat and that as long as it existed France was not defeated and that if delayed 12 hours, this retreat

would be impossible and the Fifth Army would be annihilated. He stated that he knew this decision would bring about his relief but that he would assume the responsibility of this decision because it would save the French Fifth Army.

This momentous and grave decision to retreat saved the French Army from defeat. It was one of those rare periods in the life of a commander where personal sacrifice was required to make a distasteful decision in order to save a force to be able to fight at a later date.

(36) DIE FÜHRER IM CHACOKRIEGE. [The commanders in the Chaco War.] Brandt

The author takes exception to General Fuller's book, "Generals of Tomorrow," calling attention to the numerous men who are capable leaders even though 60 or more years of age.

(37) TÜRKISCHER WEHRAUFBAU. [Building up Turkey's army.] Dr. v. Engelmann

An interesting article on the development of the Turkish Army and its preparations for industrial mobilization.

**4 August 1935**

(38) Ein folgenschwerer Entschluss. [A momentous decision.] (II) Bischlager

A dramatic account of the panic-stricken French Army in its retreat before the German armies in August 1914. General Lanrezac ordered the retreat of the French Fifth Army to prevent its being surrounded. The author describes the conversation which occurred between General Rouquerol, the commander of the III Artillery Corps, and his chief of staff, when the latter informed him that General Franchet d'Esperey, who had just assumed command, had ordered the offensive to be assumed on 5 September.

"Are the people at Headquarters crazy?" asked Rouquerol. "Did you not tell them that the personnel are exhausted and incapable of defending themselves even if they so desired? Our columns are crossing the Seine at Nogent. We require two days' rest. Did you tell the general of these things?" "That and more," was the reply. "Orders are orders and tomorrow we attack."

Attack they did on the Marne and a miracle occurred—they won the battle! The French state "this victory will remain a military and psychological victory. It really was a miracle. It has no parallel in history. Humans are very small in the great drama that God conducts."

The Germans take exception to this last quotation, stating that it is in direct contradiction to the world's view of the Third Reich which recognizes no other guiding hand to fate than their own.

(39) ORTHODOXIE UND KETZER IN DER KRIEGSLITERATUR. [The orthodox and heretic in military literature.] Lieut. General Marx, Retired

The author criticises the disciples of Schlieffen, Delbrück, Bismarck, and Tirpitz, who blindly followed the teachings of their leaders in an orthodox manner and consider all other teachings as false. Great men like Ludendorf and Wetzel are pronounced as heretics for differing in their opinions from these great masters, or stating that some other solution from that advocated by these leaders could be correct. This article is a plea for individual thought and opinion and the elimination of dogmatic orthodox following.

(40) DER VERRUFENE RÜCKZUG. [The despised retreat.] Major General Schulz, Retired

Referring to Leppa's article on "The Despised Retreat," which appeared in the 11 June 1935 issue of the "Militär-Wochenblatt," the author calls attention to the teachings in the German Army prior to the War. The mentioning of the word retreat in relation to their own forces was prohibited in some German units before the War. Woe to the officer who solved even a defense problem by retreating. His military future would have reached its end right there. The offensive was the solution to all problems.

He admits that great leaders like Napoleon, Hindenburg, and Ludendorf were able to defend, retreat, and then strike a surprise blow which

was decisive but only because they had the confidence of their men. He tells how the Russians in Manchuria in 1904 retreated but did not win the war, how again in 1914 and 1915 they were masters of the retreat but never were victorious.

In final summation the author feels that it is best to avoid the thought of retreat and retain the offensive thought, for only the "great leaders" who have the confidence of their troops might be able to follow a retreat with a victory.

11 August 1935

(41) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. NAREW- ODER NJEMEN-OPERATION 1915? [Twenty years ago: Narew or Niemen operation, 1915.]

The author discusses the plans of the German high command to relieve the Russian pressure on Mackensen's army near the Vistula River. Ludendorf suggested an offensive along Kovno, Vilna, and Minsk which would drive the Russian forces south. These forces could be attacked by Mackensen's forces and their communications cut off from the interior. General Falkenhayn feared this would cause too great a dispersion of forces and lengthening of communications; therefore the Kaiser ordered an offensive in the Narew area by Gallwitz's Army. Ludendorf's plan was only partly followed. This quickly relieved the pressure on Mackensen's forces and started a Russian retreat. Had Ludendorf's original plan been accepted, the Russians west of Warsaw could have been cut off or driven into the Rokitno marshes. The Russians were far better prepared to defend the Narew area than they were the Kovno, Vilna, Minsk line.

(42) ITALIEN GEGEN ABESSINNIEN. [Italy versus Abyssinia.] (I & II) Colonel v.Xylander, Retired

The author describes the mobilization of the Italian Army with its many colorful units which are identified by names as well as numerical designation. To make the conscription possible, men of all walks of life were carefully selected. Students were organized into units which were given romantic names and dashing slogans.

The concentration was difficult due to inadequate harbor, water, road, rail, etc., facilities. These defects were remedied in a remarkably short time and improved to care for the steady flow of troops and supply for the African campaign. These works were to have been constructed by native labor but this failed to materialize. Then restrictions placed on Egyptian and Indian labor compelled the Italians to use mostly white labor in this unhealthy climate. Efforts to improve the sanitary conditions were not as successful as desired, for 113 white laborers died during the first 6 months of work, and by the beginning of July 3,000 sick Italian soldiers had to be sent back to Italy.

(43) DIE TAKTISCHE AUFKLÄRUNG DER LUFTARMEE. [Tactical reconnaissance by aviation.] Colonel Nagel, Retired

The author states that the difference between strategical and tactical reconnaissance is dependent on the purpose and objective of the mission and that many purely tactical missions may return with strategical information.

The tactical reconnaissance for a flight of bombing units, consists of an advance flight of reconnaissance planes to radio back the meteorological and military information to save time for the bombing formation. These reconnaissance planes give warning of any rearrangement of hostile anti-aircraft installations, air barriers, and the ascent of hostile pursuit planes. At night they illuminate the target or route with parachute flares, etc.

The author describes methods of determining hostile anti-aircraft guns, searchlights, signal stations, airdromes, etc. Night reconnaissance is stressed by the author because of the hostile activity that occurs at that time.

(44) WIE SOLL DAS FUSZVOLK DEN TANKANGRIFF BEGLEITEN? [How should foot troops accompany a tank attack?] Brandt

Modern tactics ask almost the impossible of foot troops. Tanks, when they appear, are taken under severe fire by all weapons endangering a zone of 500 yards about them. If infantry follows in this zone there

will be few left available for the actual attack. Should the infantry follow 500 yards behind the tanks, the assistance of the tanks would be lost and the enemy would have recovered sufficiently to mow them down. To have the tanks slow down is out of the question for they would be destroyed immediately.

The author suggests ultra fast tanks to precede the normal tank attack, which would destroy the antitank defenses and make the movement of the second wave easier and with fewer casualties. The author even suggests that some infantry mount the tanks of the second wave and ride part way with them. He advocates that new tanks be constructed with a platform sufficient to hold 4 to 6 riflemen on each tank.

(45) STAATLICHE ODER PRIVATE RÜSTUNGSGINDUSTRIE? [Federal or private munitions industry?] Captain Ruprecht, Retired

The author discusses the protest against the international munitions industry ring which is increasing with the accumulation of the war clouds which are gradually appearing on the horizon. That national munitions manufacture is cheaper than private industry is recognized but the greatest advances in weapon technique come from private industry due to the trade competition. He discusses pro and con the manufacture of munitions showing how private manufacture is the better, but is difficult to control.

#### 18 August 1935

(46) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. DIE LEHREN VON KOWNO 1915. [Twenty years ago: The lessons of Kovno, 1915.] Leppa

An attack on Kovno was contemplated as early as June 1915, but it was not until 21 July 1915 that this offensive started. Progressively, with excellent artillery support, the Germans captured the outer fortresses (nine in number) before they were able to make the crossing of the Memel and take Kovno itself. The Russians lost over 20,000 men captured, 1,358 field pieces of all calibers, and vast quantities of war supplies, but above all, the key point which protected their northern flank and now presented a German threat to their flank and rear. It had served as the barrier to the only railroad which the Germans could use in reaching the flank and rear of the Russian Armies.

The great lesson of this attack was that faith and determination will always win when the enemy hesitates and is unable to come to a decision.

(47) KAMPFWAGENABWEHR DURCH MINEN. [Use of mines as tank defense.] Major General Königsdorfer, Retired

The author states that the purpose of tank mines is to seriously damage or destroy the treads of the tank or the undercarriage of multiple-wheel tanks. These contact mines will either cripple the tank causing it to stop, slow down, or become unmanageable. Only in extremely fortunate incidents would it be possible for the mines to penetrate the floor of the tank or spread the axles or cause the fuel to explode, causing fire.

Naturally these mines will affect other hostile vehicles such as combat and supply trains and it is even desired to use them against infantry. Efforts are being exerted to develop a mine which will penetrate the armored floor of a tank to annihilate the occupants.

These mines, according to their tactical use, can be called scattered mines, protective or defensive mines, and combat mines.

Scattered mines will have a moral effect mostly and cause the course of a hostile tank to be uncertain and slower, and will force the enemy to consume time by utilizing men to clear the mined area. The disadvantage of this method is the vast number of mines necessary.

The author favors the protective or defensive mines which can be carefully laid with three mines in checker-board formation in front of antitank, infantry, or artillery positions. He discusses the manner of tank approach, the frontage and number of antitank weapons available showing that gaps will exist which cannot be covered by weapons. He then mathematically estimates the number of mines necessary for the defense. He recommends that the division engineers carry 5,000 mines in their combat train, that antitank companies and batteries have an

individual allotment of about 80 mines each and the remainder of the great number required be carried by the division mine munitions train.

General Königsdorfer feels that the task of planting the mines is the function of the engineers. He states that a medium protection for a  $7\frac{1}{2}$  mile front would need about 20,000 mines which would require about 3 companies or a total of 400 men to plant (50 mines per man).

(48) ITALIEN GEGEN ABESSINIE. [Italy versus Abyssinia.] (III & IV) Colonel v.Xylander, Retired

The high wages for laborers and the care of their families has created a new financial burden on Italy. The rate of pay for the militia soldier in the beginning was greater than that of the regular soldier. This has been equalized and later the pay of those in Eritrea and Somaliland was increased, Somaliland soldiers drawing the greatest pay. Most of this money finds its way back to Italy; for example, in one month  $3\frac{1}{2}$  million lire were mailed back.

The Abyssinian armament has been greatly curtailed, due to lack of funds as well as through political aspects. Sweden denied the use of its aviators, and France limited the shipments over the only railroad. The few Swedish officers have endeavored to train and equip the Ethiopian forces to meet a modern force. The few Turkish officers have been given high command in the native armies. The Mohammedans and Christians have united and a patriotic fervor has spread over the land. It has developed into a fight between the white and the colored races with Ethiopia as champion for the latter.

(49) GENERAL CAMON: DIE MOTORISIERTEN EINHEITEN UND IHR DIENSTGEBRAUCH. [Motorized units and their use.] (I) Bischläger

This article is based on one by General Camon, appearing in "La France Militaire," 26 July 1935.

The internal combustion motor which made the fast moving vehicles such as motor cars, trucks, tanks, armored cars, aircraft, etc., possible, has created a new era in military warfare. It has revolutionized strategy and the tactical handling of troops. The development of rapid fire weapons—machine guns, artillery etc., seemed as if the defense has become too strong for an offensive to penetrate. The motor returned the superiority to the offense by providing the means to envelop a position with large and powerful forces. This renewed mobility has revived the principle of the wide envelopment. The country that fails to recognize this evolution of military science will pay dearly for the neglect.

The introduction of these new machines necessitated a reorganization of armies. The *infantry divisions* consisting of infantry and artillery and its auxiliary services must be given march protection by a motorized group. Combat and field trains of these divisions must be motorized, likewise the artillery. *Motorized divisions* can be loaded at a moment's notice and moved to and employed at distant points. Horses are outlawed in these divisions. Its artillery is equipped for cross-country service and is hauled by tractors or trucks. These motorized divisions are utilized for strategic purposes against decisive points, to hold or secure a river crossing, delay or hold an enemy while the decisive battle is being fought elsewhere. Finally, as a mobile reserve they can deliver the decisive blow. These motorized divisions should not be as cumbersome and large as *infantry divisions* and their supply columns should be kept at a minimum. The *ultra rapid divisions* are utilized for close-in and distant reconnaissance and have two brigades each, one of which consists of motorcyclists and the other infantry on fast trucks. Whereas the motorized division has a speed of 22 miles per hour, these ultra fast units have double that speed. Because of the high rate of speed its artillery must dispense with tractor or caterpillar wheels and use pneumatic rubber tires. Its supply columns should be still lighter than those of the motorized divisions. All the divisions have armored cars and tanks attached but assigned according to speed to the divisions.

Advance supply depots should be close up so that upon radio call supplies can reach these units in several hours.

25 August 1935

(50) SEEGEWALT IN DER GESCHICHTE. [Sea power in history.] (IV)  
Vice Admiral Meurer, Retired

The underlying reason for Germany's naval armament prior to the World War was the pressure brought to bear on Germany by England's alliances with countries surrounding Germany, and England's aggression for sea trade and colonization. The author tells of the desire of the German fleet, which in 1914 was strong enough to oppose England's fleet, to give battle, but how their hands were tied by the order to resort to raids and submarine warfare until the British fleet was reduced sufficiently to assure victory. He states that this was a grave error, for "Whoever desires victory on the high seas must be the aggressor." The author discusses the political and military aspects as they affected the naval strategy and conduct of the naval warfare.

(51) WESHALB NOWOGEORGIEWSK NICHT GERÄUMT WURDE. [Why Nowo-Georgiewsk was not evacuated.] General Noskoff

The fact that the Russians had failed to evacuate the great Vistula fortress of Nowo-Georgiewsk during their retirement from the Polish salient is still a mystery. Even the Russian commanders have been unable to explain the reason for this failure, which cost the Russians the sacrifice of about 100,000 men and an enormous amount of war supplies.

The hesitancy of the Russian High Command to issue the order to evacuate Nowo-Georgiewsk, which they knew to be the correct military measure, illustrates a weakness of character of a commander as well as it provides history with an example of how pure strategy can be affected by foreign elements.

(52) ORTSGEFECHT. [Village combat.] Major Schack

The author discusses the method of taking towns in mobile warfare by advancing on either side and then cutting off the town. He also discusses the necessity of combat within the town in cases of civil disturbances.

(53) DIE ZUKÜNSTIGE ENTWICKLUNG DER ENGLISCHEN ARMEE. [The future development of the British Army.] Braun

A review of Liddell Hart's article which appeared in "The English Review" in which he expresses his unofficial views of the lines along which the British Army is developing. His main views are that infantry must be provided with armored machine guns which can accompany them into the front lines. They must either be loaded on trucks or on fast tanks. He also feels that animal-drawn supply and combat trains must be eliminated and replaced by fast motorized units. Mechanized units will become principal air targets and that their best defense against aviation would be numerous but smaller mechanized units. This will cause dispersion of air forces. Speed and mobility will provide the maximum protection of the mechanized units against air attacks.

4 September 1935

(54) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. DIE OPERATIVE BEDEUTUNG DER SÜDPOLNISCHEN UND GALIZISCHEN FESTUNGEN IM WELTKRIEGE 1914/15. [Twenty years ago: The operative value of the South Poland and Galician fortresses in the World War, 1914-1915.] Major General Klingbeil, Retired

An account of the strategic value of the Russian fortresses in South Poland and Galicia opposite the Austro-Hungarian southern flank of the eastern theater of war. The author describes the various natural defenses, such as the unfordable Vistula, San, Bug, and Dniester Rivers and why the great fortresses at Krackow, Prezemysl, Lemberg, etc., were built at vital points to cover the lines of communications through the Carpathian Mountains into the fertile country beyond them. He describes the Russian efforts to eliminate these fortresses, especially Prezemysl, which was compelled to surrender after three months of siege due to starvation and lack of munitions. To capture these fortresses the Russians were compelled to utilize large forces of troops and great quantities of weapons for a considerable length of time. This gave the Central Powers the opportunity to strike a decisive blow elsewhere.

(55) MILITÄRGEOGRAPHISCHE BETRACHTUNG ZUM FRANZÖSISCH-RUS-SISCHEN BÜNDNIS. [A military-geographical view of the Franco-Russian Alliance.] Captain Pickert

Very little is generally known of the political borders of eastern Europe. The military geographical situation pertaining to the conclusion of the Franco-Russian Alliance deserves definite consideration in viewing the possibility of an active Russian aggression in the event of a West European conflict.

The author feels that due to the distance, the possibility of a German aggression against Soviet Russia is out of the question. Soviet Russia's influence in the border buffer states is well known, its aviators visiting these countries quite often. Should these states cast off their neutrality, then the Russian threat would be brought directly to the German border. The road difficulties in East Prussia are well known; likewise the existence of a great Russian mechanized force is known. The great problem of supply for this mechanized force is beyond the capability of the Russian railroads now in existence which are progressively deteriorating. Note-worthy is the fact that the present Soviet North Sea fleet cannot be considered a threat to Germany.

Neutral Poland must act as a breakwater against the flow of Communism to protect Western Europe. Should it permit Russia passage through its territory, it would then become the S.O.S. center for the Russian armies. The only reason that can be given for this treaty is France's mania for security and Russia's hopes that in this way its world revolution can gain a foothold in Western Europe.

(56) HINDERNISSE GEGEN KAMPFWAGEN. [Obstacles versus tanks.] Major General Königsdorfer

This article describes the use of mines and obstacles to combat tank activities in woods, also the use of piling, mines, and wire to combat amphibian tanks at water crossings. The author advocates trenches 15 feet wide with vertical concrete sides as the best obstacles against tanks. All of the obstacles must be surrounded by mines to be effective.

(57) FLUGABWEHR. [Antiaircraft defense.]

Due to the great speed developed by the modern bombers the air defense problem has become much more difficult than in the past. A well organized passive defense will not give absolute protection but will make hostile bombing more difficult and erratic.

The term antiaircraft defense really includes several phases:

- (a) Counteroffensive by one's own bombers;
- (b) Passive defense by the cooperation of combat planes, anti-aircraft batteries and searchlights;
- (c) Protective measures such as alert stations in antiaircraft zones, gas masks, and other precautionary measures to reduce civilian casualties.

The most important defense measure is the establishment of widespread alarm service to announce the approach, general direction, altitude, and number of the hostile bombing squadrons, in advance of their arrival. A well organized telephone net is essential. The British have estimated that a modern high speed bomber could be over London 15 minutes after being sighted along the seacoast. It can be seen that it may not be possible to attack these prior to their reaching their objective. Also it is paramount that the pursuit aviation develop a speed greater than that of the bombers.

Terrestrial fire against bombers which can attain 12,000 to 15,000 feet altitude is scarcely adequate. The best than can be hoped is that in centers such as London or Berlin a cordon of antiaircraft guns be located about these centers. These should inflict the first casualties on the invaders and compel the hostile formations to separate. This will make the task of the pursuit aviation easier. In close formation bombers are a veritable fortress bristling with weapons sufficient to ward off pursuit.

The author discusses the difficulties of the ground batteries in ranging on these ultra-fast modern bombers, but feels that the modern antiaircraft weapons by their fire can force the bombers to alter their course and ele-

vation sufficiently to make their bombing inaccurate and also inflict some losses on their numbers. The searchlight and sound detectors are essential to combat night bombers. It requires unusual skill by an operator to pick up a hostile plane with his light beam and then keep that plane within that beam in order to help the ground batteries and the pursuit aviation to locate their target.

(58) NOCHMALS VERWENDUNG DER PANZER-ABWEHR-KOMPANIEN. [Another use of the antitank company.]

An article commenting on the utilization of the antitank company as march protection of a column, having them cover road crossings and road forks, also by attachments of parts thereof to the advance guard and rear guard.

(59) GENERAL CAMON: DIE MOTORISIERTEN EINHEITEN UND IHR DIENSTGEBRAUCH. [Motorized units and their use.] (II) Bischlager

In this second instalment the author suggests that roads be previously reconnoitered and clearly marked to provide for unimpeded and fast progress of the columns. Also that columns be shorter and move on parallel roads. The personnel for this purpose must be thoroughly trained in map reading and able to speak the language of the inhabitants. The author describes the selection and training of these "pathfinder" officers. He also discusses the use and training of civilian pilots for reconnaissance and combat service in the event of war. The use of two-way radio service with these advanced "pathfinders" detachments is suggested. He further suggests that these detachments be organized into a larger service with a staff and a general officer at its head.

(60) ITALIEN GEGEN ABESSINNIEN. [Italy versus Abyssinia.] Colonel v.Xylander, Retired

The author presents a detailed account of the mobilization and concentration of the Italian forces for service in Africa. The service background and recruiting locality of these troops are given, as well as the names of the commanders, with their ages and service history. He describes the medical, sanitary, and commissary services.

#### 11 September 1935

(61) GRAF SCHLIEFFEN UND DER JÜNGERE MOLTKE. [Count Schlieffen and the younger Moltke.] Colonel v.Mantey, Retired

A discussion of the question of changing the Schlieffen plan of 1905 by General von Moltke. The author describes the great differences of opinion between the two.

(62) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. DIE ROLLE DER ÖSTERREICHISCH-UNGARISCHEN UND ITALIENISCHEN FESTUNGEN BEI KRIEGSAUSBRUCH IM FRÜHJAHR 1915. [Twenty years ago: The role of the Austro-Hungarian and Italian fortresses at the beginning of the War and in the spring of 1915.]

This article describes the system of fortifications along the Austro-Hungarian—Italian border. The author briefly gives the history of these fortresses dating back to 1848, 1859, and 1866 when many of the Austrian fortresses were turned over to Italy. In 1906, General Conrad of the Austrian Army reported on the poor condition of these fortresses and started the campaign for their modernizing. This work was never completed due to lack of funds. The Italians went through a similar process. During the first years of the War, the Italians did not have an opportunity to make use of the combat value of these fortresses but they did support the Italian forces in their advance.

(63) EIN HISTORISCHER TAG DEUTSCHEN MILITÄRFLUGWESENS. [An historical day for German aviation.] Captain v.Koerber, Retired

An article relating the history of Germany's aviation service from the first flight in September 1910 to the twenty-fifth anniversary when it was revived in opposition to the Versailles Treaty.

(64) GEHÖREN MOTORISIERTE EINHEITEN ZUR INFANTERIE? [Do motorized combat teams belong to the infantry?]

The question whether motorized combat teams should be part of infantry regiments has not been satisfactorily answered according to the

author of this article. He claims that it is a violation of the principle of mobility when a fast moving motorized unit is organized as an integral part of a slower unit. He feels that it would be far better to have the antitank weapons hauled by horses than by motor for the above reason. Also he somewhat agrees with other advocates that the motorized combat teams and other fast-moving weapons be grouped together under division control so that it can dispose of them as the situation requires.

(65) DER SCHUTZ DER RÜCKWÄRTIGEN DIENSTE. [Protection of the line of communications.] Lieut. Colonel Giesecke (See abstract, page 27)

(66) ITALIENISCHE GRUNDSÄTZE FÜR DIE HÖHERE TRUPPENFÜHRUNG. [Basic Italian ideas on higher troop leadership.] Colonel v.Xylander, Retired

In June there appeared a new edition of the Directives for the use of larger bodies of troops prepared by the Italian General Staff. These followed in general the line of thought as expressed in the book, "The Decisive Battle," by General Frasca. This brief directive serves more as a guide for the commander rather than a regulation. The author states that the directive stresses the offensive and gives considerable attention to the use of reserves and large fast-moving troops. They also cover the use of aviation.

(67) DIE INFANTERIESCHULE DER VEREINIGTEN STAATEN. [The United States Infantry School.]

A rather complete description of the Infantry School at Fort Benning, Georgia, and the history of military instruction in the United States since the establishment of a school at Fort Leavenworth, Kansas in 1881. The author describes the curriculum and the units at the disposal of the school for its instruction.

18 September 1935

(68) NÄCHTLICHE FERNUNTERNEHMUNGEN VON BOMBENFLOTTERN. [Distant missions by bombing squadrons at night.] Colonel Nagel, Retired

An article describing preparation, organization, and execution of long distance bombing missions at night. Considerable reference is made to the French and American data on this phase of aviation. The author also comments on the reconnaissance and security provided for these missions and methods of evading the antiaircraft defenses such as search-light, sound detectors, etc.

(69) ERFAHRUNGEN IM GEBIRGSKRIEG IN MAZEDONIEN 1917. [Experiences in mountain warfare in Macedonia, 1917.] Schmid

After describing the mountainous terrain of Macedonia, barren in most part and cut up by narrow gorges, the author states that the supply service during the War was greatly handicapped and caused the high command in Macedonia great worries. Troop movements could only be undertaken after a careful study if supplies could be furnished. The army found that the hostile supply base was nearer than their own base which was at the end of the railroad, the latter being seven days' march from the right flank and four days' march from the left flank. The Eleventh Army had to be supplied by aerial cable railway. Trucks could not function in rainy weather so they had to resort to ox carts and animal-drawn means.

Experience soon demonstrated that this had to be a war to dominate and gain possession of the various peaks and heights which were the key points dominating the surrounding terrain. The author describes the combined infantry and artillery action in the combat for these heights.

The author states that maps were so inaccurate as to be useless and that accurate reconnaissance was imperative for every contemplated move. Time and space factors differ in mountain fighting from that on normal terrain due to the fatiguing climbs and descents and difficulty of moving artillery and supplies. Also fog, storm, and temperature may make it imperative to postpone contemplated movements.

Due to the great delays in transmitting orders, it is essential that the high command transmit these orders sufficiently in advance of the contemplated action to insure its timely receipt. Every officer and soldier must

utilize to the greatest extent his ingenuity and initiative to make up for the lack of facilities on hand because of the supply difficulties.

The author describes the location of reserves, organization of the ground, and types of artillery best suited for mountain fighting.

(70) DER MILITÄRISCHE WERT VERAUTER BEFESTIGUNGEN. [The military value of obsolete fortresses.] Hofweber

In this article the author illustrates by references to World War examples, that the obsolete fortresses still possess a military value. He refers to their deep cellars and casements which afforded such excellent protection against heavy shell fire and would also, in modern warfare, give excellent protection against aviation bombs. And the moats and walls are a protection against tanks or mechanized forces. An enemy would be compelled to bring up his heaviest artillery and a great number of assault troops to capture even the obsolete fortresses if these are equipped with a fair amount of modern weapons. Since most of these old fortresses, chateaus and castles have springs and wells they can hold up a besieging force several days or weeks before being forced to capitulate.

(71) INFANTERIE-NACHRICHTENDIENST. [Infantry communications service.] Captain v.Saldern

The peace treaty prohibited the organization of communications service for the German infantry. Courses in communications were given for the regimental and battalion staffs. Cadres formed from these school platoons must expand and instruct the one-year conscript in blinker, telephone, radio, and other means of communication. The training of the messenger dogs will suffer most from this one-year instruction, as the continuous change in dog instructors will ruin the dogs.

The author further discusses the difficulties of communications training in the battalion. He states that too often both officers and men who return from the signal schools forget they are infantrymen in their efforts to specialize in this phase of troop training. To be of real assistance they must and should know the infantry problems; therefore the communications personnel should attend all regimental training. This in many cases is difficult since this personnel is loaded down with equipment and cannot keep pace.

(72) DIE BAGDADBAHN IM VORDERGRUND. [The Bagdad railroad as a headline.]

The author calls attention to the sudden importance of the Bagdad railroad as affecting the African situation.

### 25 September 1935

(73) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. DER VERSPÄTETE BEGINN DER WILNA-OFFENSIVE IM SEPTEMBER 1915. [Twenty years ago: The delayed start of the Vilna offensive, September 1915.]

On 7 July 1915 the Kaiser decided against the campaign proposed by the Commander of the Army of the East to envelop the Russian positions along the Narew. Ludendorf was determined to renew his request for an offensive against Vilna as soon as the opportunity permitted.

The Narew campaign was not very fruitful in gains for the Germans; on the contrary, they suffered many casualties. Count von Schlieffen's doctrine that the hostile front must not always be the objective, was well illustrated here. A massing of troops on the north as wanted by Ludendorf was desired. The offensive against the Russian north flank started 9 September after much opposition by the Chief of Staff, General Falkenhayn. Great resistance was met on this north flank, which had been weak when the original request by Ludendorf was made, because the Russians had reinforced it. The full fruits had been denied the German forces and a decisive victory was prevented by General Falkenhayn's inability to arrive at a decision in time for this offensive.

(74) CLAUSEWITZ UND DER GEBIRGSKRIEG. [Clausewitz and mountain warfare.] Captain Kübler

Clausewitz devoted 20 pages of his book, "From the War," to combat in mountains. Before the war there appeared to be practically no training

in this type of warfare; but during the war the German Army participated successfully in mountain warfare in the Vosges, Serbia, Alps, and in Italy.

Although small garrisons in mountains, well located, possess extraordinary defensive strength, still it does not hold that it requires large forces to break through. In mountain warfare all troop movements are slower and more fatiguing. Clausewitz states that should the aggressor decide to strike at a certain point in superior numbers it would be impossible for the defense to move reinforcements to the threatened point in time to prevent the breakthrough.

Clausewitz further states that the defense in mountain warfare is more passive and the counterattack usually weaker. He also states that the more rugged the mountains the greater will be the necessary splitting of forces. Clausewitz illustrates his statements by the historical experiences of Italians in the Alps in 1917. Under the title "offensive" he makes the following statements: (a) The aggressor in mountain warfare must advance over several roads over a wide front. (b) He must endeavor to break through the defensive positions by a strong concentrated action at some one point. This would hasten the opportunity to strike at the defender's main line of retreat. (c) Some isolated positions of the defender must be passed and cut off. This procedure need not necessarily be a flank or rear attack.

Clausewitz also describes the fighting in valleys. Here again he makes paradoxical statements when he says that to be master of the situation it is necessary for the aggressor to place all of his forces in the valleys. This seems strange in view of the common conception that he who commands the heights commands the valleys. He bases this statement on the fact that operations do not start from the heights against valleys, but vice versa.

(75) WIE SOLL FUSZVOLK DEN TANKANGRIFF BEGLEITEN? [How shall infantry accompany the tank attack?] Braun

An abstract of this article will be published in the next issue of the Quarterly.

(76) FLIEGERVERWENDUNG IM KAMPFWAGEN-VERBAND. [Use of aviation attached to tanks.]

The author, commenting on General Eimannsberger's book, "The Tank War," describes that part of the book which refers to the aviation which is attached to the tank division. Briefly he describes the types of planes best suited for the numerous missions that are desired of this attached aviation citing the advantages and disadvantages of the different types of aircraft. The size, from 2-seater, all-purpose planes to the huge military transport and commercial transport planes, is also covered in his discussion.

Especially interesting is that part referring to the landing of or bailing out from transport planes of large bodies of men equipped to delay hostile reinforcements from reaching a destination, interrupting the hostile line of communications, roads, or railroads. Also, the bombing of localities and the most recent experiment of landing tanks from aircraft are discussed.

(77) ITALIEN GEGEN ABESSINIE. [Italy versus Abyssinia.] Colonel v. Xylander, Retired

This article describes the mobilization of the 17 and 18-year-old Italian youths to form the special Avanguardia 100,000 men strong. These are to take over the interior duties. The mobilization of these extremely youthful men for service indicates a man shortage and since only 25,000 of them are equipped with arms, there appears also to be a shortage of weapons. The author gives detailed data on the names and designations of newly organized or reconstituted Italian units giving their armament and names of commanders.

The article also discusses the financial status of Italy and its vast purchase of war materials and necessities. Morale of the Italian nation is shown as fair, due to the great propaganda used to bolster the people who never favored a colonial war.

(78) TÜRKISCHE LUFTAUFÜSTUNG. [Turkish air armament.] v.Engelmann

This is an article on the rehabilitation of the Turkish air force, which is especially interesting since its air force is dominated by the French who now have entered into a commercial competition with Turkey and because Germany has gained a favorable foothold again in Turkish industry.

4 October 1935

(79) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. DER FELDZUG IN SERBIEN. [Twenty years ago: The Serbian campaign.] General v.Berendt

After the German successes at Tarnow-Gorlice, troops were available for a campaign to eliminate the barrier to direct communication with Turkey. Serbia constituted that barrier and served not only as a threat to the flank of Austria but also as a link to permit Russian troops passage to strike Austria in the flank. This barrier and threat had to be eliminated. Bulgaria joined the Central Powers after the victories on the Russian front. The campaign plan into Serbia called for German troops to which Austria objected, but having insufficient troops of her own she consented, providing an Austrian general commanded. Bulgaria would participate only under a German commander, so it was finally decided that Marshal Mackensen should command.

The first objectives of the operations were the Danube crossings to be undertaken on a wide front. Preponderance of artillery over that of the Serbians made this possible. The normal division bridge material was insufficient and had to be augmented by rowing detachments, motor boats, tugs, and steamers. The first crossing attempted was at Palank-Bazias and met with no Serbian resistance, whereas the others met with tenacious resistance and only succeeded because of the preponderance of artillery. The armies of the Central Powers entered Belgrade on 9 October.

The Central forces then started to systematically drive the Serbians before them while the Bulgarian Armies struck them from the flank and rear along the Vardar River in Macedonia. After seven weeks the campaign ended and the road to Turkey was open and that country united with its Germanic allies.

(80) DIE BEDEUTUNG DER FESTUNGEN IM ZEITALTER DES KAMPFWAGEN-, LUFT- UND CHEMISCHEN KRIEGES. [The significance of fortresses in the age of tank, air, and chemical warfare.]

The senior Moltke at one time suggested that it would be far more beneficial to construct railroads than to construct fortresses. The statement was made for a special situation and not to be taken as a general rule because the fortresses properly used proved their value during the World War.

Only in such instances where upon orders of higher authority they were prematurely evacuated or where the commander and garrison failed to resist to the bitter end, did they fail to serve their purpose. Immediately after the World War there was a slump in construction and maintenance of fortresses. France was the first country to revive the construction of fortresses by erecting many to protect its German and Italian frontiers. This has resulted in a powerful system of fortifications based for defense against modern armament. Italy has also modernized its western fortresses.

All European nations have started a period of fortification construction. Tanks and aviation have made great strides in their development into offensive weapons. Although there has been no new discovery in chemical warfare gas made public since the war, it is a known fact that all nations are feverishly researching and experimenting on new gas which could afford the element of surprise in a future war. The utilization of smoke clouds has been developed to a high degree since the war, especially in regard to offensives against fortresses.

Although it is hard to prophecy the conduct of a future war, it is an accepted theory that a surprise attack by the very mobile branches of the land army and by the aviation will start the war.

The author describes the possible use of tanks of all descriptions against fortresses and estimates their value and effect. He even takes

into consideration remote controlled tanks to set off mine fields or fill in or bridge over trenches. He also discusses the use of fortresses as bridge-heads and how these will create great trouble to tank and armored-car units in preventing crossing near arterial roads. Ponton crossings are difficult and slow for heavy vehicles; therefore they will become targets of air defense activities.

In conclusion, the author states that, despite tanks, aviation and gas warfare, fortresses are invaluable for frontier and interior defense, especially so in the event of a two or more front war.

(81) DIE NACHRICHTENVERBINDUNGEN DER 8. ARMEE IN DER SCHLACHT AN DEN MASURISCHEN SEEN UND DER 10. ARMEE IN DER WINTERSCHLACHT IN MANSUREN. [The communication service of the Eighth Army in the battle of the Masurian Lakes and of the Tenth Army in the winter campaign in Masuria.] Major Praun

With the transition from mobile to position warfare on the Western Front the telegraph and telephone communication service between commanders and troops was rapidly completed. By 12 September 1914 the corps were connected so that members of the General Staff were able to discuss the situation by phone.

On the Eastern Front where mobile warfare still existed there was an entirely different picture. The Russians had destroyed all communication services which had existed and those that remained in possession of the Germans were unserviceable.

The author describes the difficulties experienced by the German Eighth Army in communications and the efforts which were made to reestablish communication. Telephone connections between the Army and the Corps could only be reestablished and the telegraph and wireless were used from the lower units up to Corps. The light wireless sets were taken from the cavalry divisions and supplied to the extreme right flank to keep this in touch with headquarters.

Prior to the winter campaign in the Masurian area each army corps was equipped with a light and heavy radio station. Telephone communications was partially disrupted and reliance had to be placed in the radio service. Two hundred and twenty messages were sent by radio in five days; this accomplishment was remarkable, for it must be remembered that the troops marched from 14 to 16 hours and devoted the remaining hours to sending messages and setting up equipment and preparing for the next day's march.

(82) TRUPPENTRANSPORT MITTELS FLUGZEUGEN. [Transporting troops by aircraft.] First Lieutenant Feuchter, Retired

The author discusses the use of aircraft to transport troops from (a) one part of the line to another sector which is threatened, and (b) as an invading force to some vital point behind the enemy's lines.

Under (a) he describes the experiences of the British and Japanese in rushing troops to threatened areas of their colonies by aircraft, utilizing their bombers and transport planes. In these instances 24 men per plane with full equipment packs, guns, machine guns and trench mortars, and ammunition were transported. Rations, ammunition, etc., were also supplied by planes. In recent maneuvers in the United States the air service transported a complete battery of four field howitzers, crew, and necessary ammunition by airplane. These guns were ready for action fifteen minutes after the landing of the plane.

Under (b) it can be said that the landing of troops behind the enemy lines to disrupt and destroy special facilities, constructions, or disrupt his communications, possesses many difficulties. Daylight landings are almost impossible since large ships are necessary, and suitable landing fields for night landing are hard to find. It would be impossible to land close to the objective undetected, but despite these known difficulties nations are continuing their experiments along these lines. The use of the parachute to land troops was first experimented in the United States, but Russia has gone into this method of landing a force in a big way. To stimulate the training of large numbers of men for this, Russia has made it a national sporting event.

**MILITARY ENGINEER**

**January-February 1936**

**(1) THE TACTICAL EMPLOYMENT OF SMOKE.** Captain Beurket

The author advocates that greater use of smoke should be made in our training and maneuvers in order to get full benefit from the use of smoke. He says that "the infantry must now be trained in fire, smoke, and movement, for no longer will training in fire and movement be adequate"—and "in the course of battle, a little reasoned initiative in using smoke at critical moments may often mean the saving of many lives or the avoidance of interruption to the steady progress of an attack."

**MILITARY SURGEON**

**February 1936**

**(1) DISEASE IN MILITARY CAMPAIGNS.** Lieut. Colonel Mercer

The author cites examples to show that disease has killed more men in wars than bullets. He contends that proper and modern methods of military hygiene and sanitation and constant supervision by commanders in cooperation with medical officers, will save many thousands from disease and death in future wars.

**(2) THE LAST DAYS OF "STONEWALL" JACKSON.** Captain Camerer

This article, derived principally from "The Life of General Thomas J. Jackson," by Sarah N. Randolph and from "Memoirs of Stonewall Jackson" by Mary Anna Jackson (his widow) both written by eye witnesses either contemporaneously or soon after Jackson's death, presents a vivid and detailed medico-historical review of the circumstances surrounding the wounding of the famous Confederate leader, his subsequent treatment and disposition, his death and interment at Lexington, Virginia.

**NAVAL INSTITUTE PROCEEDINGS**

**December 1935**

**(1) AIR TACTICS AND AIRCRAFT DESIGN.** Wilson

A study of the influence of strategy and tactics upon modern aircraft design.

**NAZIONE MILITARE (Italy)**

By Major F. During, Infantry

**July-August 1935**

**(1) NOTE DI ATTUALITÀ—APPUNTI DI LOGISTICA COLONIALE.** [Timely views: The supply situation in the colonies.] Perugini

According to the author, the construction and maintenance of roads is the greatest problem the Italians have to face and to solve. The operation can advance only as far as the road situation permits, and the roads must be so constructed that they will carry masses of modern motor vehicles without being greatly damaged by this enormous traffic. Camel and pack animal trains are found to be inadequate. The troops must be constantly supplied with rations for 4 or 5 days, and with ammunition for 3 days.

This article shows the methodical manner with which Italy has planned the war in Ethiopia.

**PIONIERE (Germany)**

By Major F. During, Infantry

**August 1935**

**(1) BEFEHLSGEBUNG FÜR DIE "ALBERICH"-SPERRUNGEN.** [Orders for the Alberich defenses.]

This is the concluding article of an account of the orders issued by the German Second Army and subordinate units for the retirement to the

Hindenburg line during the winter of 1916-1917. The orders of the XXIII Reserve Corps and of the 25th Division are reproduced as models.

(2) DIE PIONIERE DER 7. ARMEE BEIM ANGRIFF ÜBER DIE MARNE AM 15. JULI 1918. [The engineers of the German Seventh Army in the offensive across the Marne, 15 July 1918.] Major-General Kuntze

The place selected for this offensive, which was made with the intentions of seizing the initiative and to prevent a French attack, was the front from Chateau Thierry to Rheims and east of Rheims. The Seventh Army was part of a group of armies commanded by the Crown Prince. The operation is considered fully from the engineers' point of view, under the headings: mission, terrain, enemy, strength of engineers, plan of attack, and orders for the engineers. General Kuntze concludes with fifteen lessons to be learned, some of which apply to the crossing of the Marne, while the majority are of a general nature.

(3) MINIERKAMPF UND KRIEGSGEOLOGIE IM WYTSCHAETEBOGEN. [Mining warfare and military geology in the Wytschaete salient.] Major Kranz

This article, illustrated with sketches, describes the mining operations undertaken by both sides during the battle of Messines in 1917. After the British fired mines at St. Eloi in March 1916, the German mining was done on a more scientific basis. Major Kranz briefly recites the battle of Messines, which is followed by detailed accounts of the principal mines fired on 7 June 1917, at Hill 60, St. Eloi, and others. The author then gives some general lessons to be learned from these mining operations. Major Kranz states that the story of the disaster of Messines would have been different had the Germans realized earlier the vast amount of labor and matériel required for successful countermining, which should have been directed by a geological expert.

(4) EIN FLUSSÜBERGANG IM 30JÄHRIGEN KRIEGE. [A river crossing in the Thirty Years' War. The battle at Rain in 1632.] Colonel Jesse

In the spring of 1632 Gustavus Adolphus was advancing to the Danube. Tilly, who was outnumbered and already beaten, was ordered to prevent the Protestant Army from entering Bavaria. Gustavus Adolphus, however, avoided Tilly and crossed the Danube at Donauwörth, southwest of Ingolstadt where Tilly was in position. This advance had the disadvantage of putting between Gustavus and Bavaria the river Lech, a tributary to the Danube. The King made a personal reconnaissance along the river and decided to fight his way across, near the town Rain. Owing to a bend in the river, the Swedes were able to concentrate on the enemy's guns from three directions. Under cover of his artillery fire, 500 men were sent across to form a bridgehead and the building of a trestle bridge was started. The cavalry crossed the river by a ford, but nearly 40,000 troops used the trestle bridge. Despite a counterattack by Tilly, Gustavus' army continued its advance. Tilly was mortally wounded during this crossing.

## QUARTERMASTER REVIEW

November-December 1935

(1) FIRST ARMY QUARTERMASTER SERVICE. Major Marshall

Major Marshall has written a worthwhile article about the Quartermaster Service during the First Army Maneuver in August 1935, in which five divisions had to be concentrated, fed, and supplied at Pine Camp.

(2) FORT SAM HOUSTON. AN HISTORICAL SKETCH. Major Kindervater  
Major Kindervater has given us an interesting sketch of the post of Fort Sam Houston.

January-February 1936

(3) THE PHILIPPINES OF YESTERDAY. Colonel Davidson, Retired  
Colonel Davidson gives his personal impressions of his service in the Philippines during 1901-1904 and 1907-1909.

(4) SHILOH. Colonel Edwards  
A study of the battle of Shiloh.

(5) STRATEGIC RAW MATERIALS. Colonel Wagner

This article takes into consideration the essential industries and the raw materials necessary to conduct a war of any magnitude.

**REVISTA DEL EJERCITO Y DE LA MARINA** (Mexico)

By Captain Wendell G. Johnson, Infantry

**July 1935**

(1) LA BATALLA DE ORENDAÍN, 1914. [The battle of Orendain, 1914.]  
Colonel García

Orendáin was the corollary of skillful operations directed concentrically against the flanks and rear of the federal forces of the usurper Huerta by the constitutional army under General Obregón. To quote the author, it brought about the envelopment and destruction of the enemy by the same maneuver employed by Hannibal at Cannae against the Roman legions of Varro. The culmination of the battle was brought about by a decisive and energetic envelopment initiated from Ahualulco. The federals lost to the revolutionary army of Obregón 2,000 dead, a multitude of wounded, 5,000 prisoners, 16 cannons, 5,000 rifles, 18 trains, a half-million dollars, and a large quantity of supplies. The battle is considered one of the best prepared in the military history of Mexico.

(2) DE HUATABAMPO A LA BOMBILLA. [From Huatabampo to La Bombilla.] Lieut. Colonel de J. Solis A.

A summary of the military and civil acts of General Obregón from 1912 to 1920 and the closing chapter in his life.

(3) LAS GUERRAS DE UN FUTURO PRÓXIMO. [The wars of the near future.] Major Saldana Alcocer

A study of the various types of gases of chemical warfare, their effects, protection against chemical attacks, and the treatment of gassed patients.

(4) NUESTROS FASTOS MILITARES. [Our military annals.] (I)

A summary of important events in the military history of Mexico since the declaration of its independence and early insurrections against the dominion of Spain; all events being ones that have occurred in the month of July.

**August 1935**

(5) LA MARINA EN LA CUESTIÓN DE TEJAS. [The navy in the Texas affair.] Lieutenant Lopez de Nava, Mexican Navy

A study of the incidents leading up to the separation of Texas from Mexico.

(6) HONORES TRIBUTADOS AL CABALLO. [Honors rendered to the horse.]

This must be the inspiration of a cavalryman. The author cites the important place of the horse throughout the ages, from lowly use as the source of valuable dung and edible meat to the high estate accorded it by modern, medieval, and ancient men of arms who have erected statues to honor celebrated members of the equine family. Caesar buried his horse in the same temple that he had built in memory of his mother.

(7) EL CONDE VON SCHLIEFFEN Y SU ESTRATEGIA. [Count von Schlieffen and his strategy.]

A translation of the work of Colonel Gustavus M. Blech, Medical Reserve Corps, U.S. Army.

(8) NUESTROS FASTOS MILITARES. [Our military annals.] (II)

Important military events in the history of Mexico which occurred during the month of August.

**September 1935**

(9) TIRO SOBRE BLANCOS AÉREOS DE GRAN SUPERFICIE, REMOLCADOS. [Fire on large, towed, aerial targets.] From the study of M. Etienne Grandjean, translated and arranged by Major Montenegro

A study of aircraft machine-gun fire on large air-publicity towed targets (in lieu of small sleeve targets). Antiaircraft fire on this type of target is also discussed.

(10) ELBA Y OSÉL. [Elba and Osel.] Translated from the Italian by Lieutenant Martinez

A discussion of the successful landing on the island of Osel during the World War, to illustrate the importance of geographical science on war. From this operation is constructed a parallel stroke against the island of Elba, whose geographical position in the Mediterranean and internal structure closely resemble that of Osel in the Baltic.

(11) NUESTROS FASTOS MILITARES. [Our military annals.] (III)

Famous events in Mexican military history that have occurred in the month of September.

**REVUE DE L'ARMEE DE L'AIR** (France)

By Lieutenant Colonel C.H. Wash, Air Corps

**July 1935**

(1) LE BOMBARDEMENT DES GARES ET DES VOIES FERRÉES. [Bombardment of railways and railway stations.] Chief Engineer Rougeron (Naval Constructor)

The first of a series of articles which the "Revue de l'Armée de l'Air" intends to publish on the principal types of targets suitable for aerial bombardment, the results to be expected, and the defense against bombardment which will be encountered.

This article opens with a discussion of the innumerable targets which must be considered as suitable objectives, the adaptation of the projectile to the type of target selected, and the varying methods of attack.

A detailed study of attack on rail systems follows. The author concludes that the results obtained during the World War were highly unsatisfactory, but that the interruption of mobilization and concentration in the next war will be both easy and profitable.

(2) LA TACTIQUE D'UN AVION BIPLACE DANS LE COMBAT AVEC LES AVIONS DE CHASSE. [Combat tactics of biplane aircraft against pursuit.] Lieutenant Observer Mackiewicz, Polish Air Force

A lengthy study of biplane tactics in combat against pursuit. This article is of interest to both observation and pursuit commanders as it covers in detail, defense against every possible method of approach by pursuit.

(3) LA GUERRE AÉRO-MARITIME DANS LES FLANDRES EN 1917. [The aerial and maritime warfare off Flanders in 1917.] (I) Naval Lieutenant Barjot

A continuation of previous articles on this subject. It is valuable, historically.

(4) SERVITUDES D'EMPLOI. [Field service conditions.]

An illustrated warning to aircraft procurement authorities.

(5) A PROPOS DE L'ALTIMÈTRE ACOUSTIQUE DELSASSO. [A discussion of the Delsasso acoustic altimeter.] Chief Engineer Jacquet

**August 1935**

(6) LE BOMBARDEMENT EN PIQUÉ. [Dive bombing.] Commander Serre  
An interesting discussion of the technique of dive bombing, its accuracy effects and limitations. The author is decidedly in favor of this method.

(7) LA GUERRE AÉRO-MARITIME DANS LES FLANDRES EN 1917. [The aerial and maritime warfare off Flanders in 1917.] (II) Naval Lieutenant Barjot

A continuation of previous articles on this subject.

(8) IMAGES DE L'AVIATION AUX DARDANELLES. [Photographs of aviation in the Dardanelles campaign.]

Some hitherto unpublished photographs from the private collection of a participant in the campaign.

(9) UNE FÊTE DE L'AIR BRITANNIQUE. LE XVIE DISPLAY DE LA ROYAL AIR FORCE (29 JUIN 1935). [The sixteenth Royal Air Force display, 29 June 1935.]

(10) LE IVE DISPLAY DE LA S.B.A.C. (1ER JUILLET 1935). [The fourth display of the S.B.A.C. (Society of British Aircraft Constructors).]

(11) NOUVEAUX APPAREILS MILITAIRES PRÉSENTÉS AUX DEUX DISPLAYS. [New military aircraft shown in above two displays.] Lieutenant Léglise

**September 1935**

(12) AVIATION ET GÉOGRAPHIE. [Aviation and geography.] Captain Thoumin

An article on the relation between geography and aviation with particular reference to the role of aviation in military geography. It is not confined to the collection of geographical data by aerial photography, but emphasizes the necessity for utilizing the qualities of aviation in studying the use of the terrain for military purposes.

(13) LA GUERRE AÉRO-MARITIME DANS LES FLANDRES EN 1917. [The aerial and maritime warfare off Flanders in 1917.] (III) Naval Lieutenant Barjot

Conclusion of an historical series on above subject.

(14) NOUVEAUX APPAREILS MILITAIRES PRÉSENTÉS AU DISPLAY DE LA R.A.F. ET AU DISPLAY DE LA S.B.A.C. [New military aircraft shown at the Royal Air Force display and the S.B.A.C. display in 1935.] Lieutenant Léglise

Forty-seven illustrated pages on new British aircraft shown in 1935. It would probably be more profitable to read British aeronautical magazines on the same subject.

**REVUE D'ARTILLERIE (France)**

By Captain F.J. Tate, Field Artillery

**July 1935**

(1) GÉNÉRALISSIME ET TECHNIQUE DE GUERRE, DE KARL JUSTROV. [The Commander-in-Chief and Technique of War, by Karl Justrow.] Captain Dupont

This article is a review of Justrow's book.

Karl Justrow, a Lieutenant Colonel of Field Artillery, who is a well known technician in his country, undertakes to answer the eternal question, "What are the reasons for the failure of the Germans to win the World War? What conclusions can be drawn?"

The review states that Justrow makes a bold statement in which he places the responsibility directly on the shoulders of the high command, the General Staff, and on the Schlieffen Plan. This statement implies that the Schlieffen Plan and the General Staff underestimated one of the essential factors in the conduct of war: Technique.

Captain Dupont states that the author, in the course of his discussion, represents the new German spirit, and that the book is a reflection of this new spirit.

(2) L'ARTILLERIE DIVISIONNAIRE DANS LE COMBAT DÉFENSIF. [Division artillery in the defense.] Lieut. Colonel Moustey (See abstract, page 40)

**August 1935**

(3) CONSOMMATIONS DE MUNITIONS PENDANT LA GUERRE DE 1914-18. [Ammunition expenditure during the War from 1914 to 1918.] (I) General Fournier

(4) UNE BATTERIE DE 75 PENDANT LA BATAILLE D'YPRÉS EN NOVEMBRE 1914. [A 75-mm. battery during the Battle of Ypres in November 1914.] General Dedieu-Anglade

**September 1935**

(5) CONSOMMATIONS DE MUNITIONS PENDANT LA GUERRE DE 1914-18. [Ammunition expenditure during the War from 1914 to 1918.] (II) General Fournier

(6) UNE PROGRESSION D'ÉCOLE DE BATTERIE. [Progressive training of the firing battery.] Captain de Tarlé

REVUE DE CAVALERIE (France)

May-June 1935

By Lieutenant Colonel N.B. Briscoe, Cavalry

(1) DRAGONS À CHEVAL ET DRAGONS MOTORISÉS AU CONCOURS HIPPIQUE DE 1935. [Dragoons horsed and motored, at the Horse Show of 1935.] General Challéat

The three hundredth anniversary of the organization of the Dragoons! Led by the Dragoons of Cardinal Richelieu in red full dress, five regiments having been formed in 1635. Even these were not the earliest, as "Arquebusiers à Cheval" had appeared in 1554 but had been disbanded at the beginning of the reign of Louis XIII. This was before Gustavus Adolphus, who was born in 1594. Continuity of French Dragoons starts at 1635.

Dragoons were invented by some audacious infantry who desired to sack a castle but had to capture it by surprise. They commandeered all the neighboring horses and put over their venture, and the high command caught the value of such troops. That is the Gustavus Adolphus legend. In France, "Mounted Riflemen" were invented in 1554 under King Henry II, by the Count of Brissac, Charles de Coué, and they called themselves dragons from the diabolical-eared, winged griffin on their standards.

In the review appeared the regiments descended from the dragoons of the Cardinal, the King, the Queen, Lorraine, the Empire, the Rhone, and the Empress, followed by the motored dragoons said to be "the product of the alliance of the horse and the caterpillar."

The author then reflects on the relative merits of horsed cavalry and motored cavalry with respect to terrain and the idea that the raid and other independent missions are less likely to be carried out than participation in the main action. He recommends a division of two horsed brigades, animal-drawn artillery, and a motorized brigade. Such a division is less speedy than a homogeneous one, being limited to the horse speed, but "its tactical mobility is complete" over all kinds of terrain.

(2) UNE VISITE À L'HIPPISSIME BELGE. [A visit to the Belgian Horse Breeding System.] de Chevigny

The author is Inspector General of the French Remount Service and discusses the interest in Belgium in horse breeding and the efforts to become independent of Ireland, which was its remount supply country of 1914-1918, Hungary, which supplied horses later on, and of other horse markets. M. de Chevigny is very enthusiastic over the results in Belgium.

(3) LES UNITÉS MOTORISÉES DANS LA PACIFICATION DE L'ANTI-ATLAS. [The motor units in the pacification of the Near Atlas country in 1934.] (II) Colonel Burnol

The author continues an account which started in the previous issue of this magazine. The account is a diary of the daily movement and actions of the expeditions and gives the missions of the horse parties and the motor parties. The text cites plans, orders, etc., but the photographs show the difficulty of moving heavy motor vehicles through desert country. They remind one of chasing Villa, and one cannot but be impressed by the fact that almost any kind of resistance would have stopped the cars.

(4) LES TRANSMISSIONS DANS LA CAVALERIE. [Communications in the cavalry.] (IV) Captain Becquey

The author continues a discussion and application of the regulations, covering a delaying action and the communications in a "Reconnaissance Group" and in reconnaissance.

As noted before, there is much more wire in the French cavalry than we use. The author does not introduce any ideas not taught in our service—it is a home-consumption treatise.

(5) LA GUERRE EN AFRIQUE. [The war in Africa.] (III) Captain Licart

A continuation of an article which started in the January-February 1935 issue of "Revue de Cavalerie."

Captain Licart discusses the extreme vulnerability of convoys, the slow march, the short columns, the closed formations. The offensive must be continuous and forceful. The French are practising the Indian warfare learned by our troops a couple of generations ago.

By Major F. During, Infantry

**July-August 1935**

(6) LA CAVALERIE DANS LES OPÉRATIONS DE MONTAGNE. [Cavalry in mountain warfare.] By X . . .

An abstract of this article will appear in the next issue of this publication.

(7) DU DRAA À TINDOUF PAR LA HAMADA. [From Draa to Tindouf via the Hamada Desert.] Lieutenant de Verdelon

An interesting description of a march by an armored car squadron through the Hamada Desert.

**September-October 1935**

(8) LE RÔLE DE LA CAVALERIE ET DE SES CHARS À LA BATAILLE D'AMIENS. [The action of the cavalry and its tanks in the battle of Amiens from 8-12 August 1918.] (I) Captain de Labouchère

The author discusses the preparation for the battle, especially by the British Fourth Army under General Rawlinson. This army had a cavalry corps consisting of three cavalry divisions and two tank battalions of 48 tanks (Whippets) each. The cavalry corps had the mission to advance between the Somme and the Amiens—Roye road to the railroad line: Roye—Chaulnes. The cavalry was brought forward by brigades in rear of the infantry and when the infantry had obtained its objective the cavalry was passed through the infantry.

The tanks were attached to two cavalry brigades. The cavalry brigades passed through the infantry as planned, but after advancing a few miles, were held up by the newly formed German front.

(9) ANTOINE FORTUNÉ DE BRACK. [Antoine Fortuné de Brack.] (I) Lieut. Colonel de Dalmassy

An interesting article of the period of French restoration (1814-1830), in which the cavalry of that time is pictured.

**REVUE D'INFANTERIE (France)**

By Captain Wendell G. Johnson, Infantry

**July 1935**

(1) LE ROI ALBERT IER ET L'INFANTERIE BELGE. [King Albert I and the Belgian infantry.] General Weygand

In his lecture delivered on 1 May 1935 at the Beaux-Arts Palace in Brussels, General Weygand eulogizes the loyalty and nobility of the former king of the Belgians during the period preceding the World War; how he refused the overtures of William II to ally himself and his country with the German plan to attack France, which the kaiser told him in 1910 in Brussels and again in 1913 in Potsdam was inevitable; how on 2 August 1914, the ultimatum of the Germans was answered. General Weygand then continues his eulogy of the former king by outlining his acts as head of the Belgian Army, which he never left after going to the general headquarters on the Gette. From Liege to Antwerp and on to the Yser, where the long vigil of the heroic little army was to endure for four years, the royal commander accompanied his retreating troops. He was their inspiration. On the Yser he brought about the reorganization of his forces. Throughout the rest of the War he demonstrated his ability as a general.

(2) LA LIAISON ARTILLERIE-INFANTERIE: ARTILLERIE D'ACCOMPAGNEMENT DU RÈGLEMENT D'INFANTERIE. [Artillery-infantry liaison. Accompanying artillery of the infantry regiment.] General Challéat

The author defines accompanying artillery of the infantry regiment, or infantry regimental artillery as that which is permanently or temporarily under the orders of the infantry regimental commander to accompany

him by bounds at no greater distance than 1,000 yards. Its mission is to provide against the possible delays in the intervention of the normal direct support artillery. In addition, it has the task of assisting in the antitank defense of the regiment.

General Challéat outlines his conception of the employment of his accompanying artillery and then proceeds to describe the matériel essential to correctly carry out the missions that may be assigned it. This matériel falls into two classes: that which is not essentially designed for antitank defense and that which has antitank defense for its primary mission; the former being 75-mm. guns and the latter 47-mm. It is possible to combine this matériel by using the same carriage for two different guns, which has obvious advantages and disadvantages, or by having separate guns with their corresponding mounts. Whichever scheme is used the weight of the gun in battery should not exceed 990 pounds, in order that it can be man-handled if necessary.

The range of the 75-mm. gun should be at least 5,000 yards, preferably 7,000. Three powder charges should be available, corresponding to full, three-quarters, and half muzzle velocity.

The antitank gun, of 37-mm. or 47-mm. caliber, should have sufficient muzzle velocity to perforate from 1½ to 2 inches of armor at better than 1,000 yards range.

The gun and carriage should be transportable on a truck or cross-country carrier. A suitable munition vehicle should also be provided.

The author advocates one battery of accompanying artillery per infantry regiment, either permanently attached to it in peace time, or trained along with other artillery of the division and detached for division training and field service. This battery would have, preferably, three sections of two guns, normally 75-mm. guns. The number of pieces of 47-mm., either with or without individual carriage, should be at least half as many as those of 75's. The 47-mm. guns would normally be in the division artillery park and would be issued to replace 75's whenever their need was foreseen.

The personnel of the accompanying artillery should be artillerymen.

In his conclusions on the subject of infantry accompanying artillery the author recommends an "officier-orienteur" in each battalion to coordinate and distribute the various objectives between infantry mortars, accompanying artillery, and direct support artillery. He also proposes high velocity automatic rifles within the regiment capable of piercing five-eighths inch of armor at 300 yards, and other automatic weapons not exceeding 120 pounds in weight capable of piercing an inch of armor at 500 yards range.

(3) LA LIAISON INFANTERIE-ARTILLERIE. [Infantry-artillery liaison.]  
General Barrard

The author, who so frequently contributes his practical ideas to the "Revue d'Infanterie," stresses in this article the need for closer liaison between infantry and artillery and changes that should be made in French regulations to bring about this close contact. In the 13th Division it has been done. The greater use of the infantry mortar in no way alters the importance of the infantryman of having close support from the artillery inasmuch as the mortar is only capable, owing to its limited ammunition, of giving support on specific points. Moreover, the aid of tanks is not going to reduce the support that artillery must give, but rather will increase the demands on the artillery in order to destroy tank mines, hostile antitank guns, antitank tanks, and heavy machine guns (and blind hostile observation).

Since the battalion commander is the highest commander who can actually see the ground, his troop dispositions, and the hostile targets, it is only logical that the artillery liaison officer should be with the echelon of the battalion rather than with the regimental commander.

General Barrard contends that it is high time to break away from the somewhat concise ideas of position warfare and to contemplate the real character of infantry combat, of an infantry whose fire has acquired a

defensive value infinitely greater than it was during the War without any material change in its offensive value.

(4) **CHARS ET STATISTIQUE: I. LES CONSTRUCTIONS ET LES PERTES.** [Tanks and statistics: Production and losses.] (I) Lieut.-Colonel Perré and Captain Le Gouest

In part I of the article on the production and battle losses of French tanks during the World War, the authors give the month by month statistics on the requisitions, production, and deliveries of tanks from August 1916 to November 1918. Of the heavy tanks 399 Schneider and 294 St. Chamonds were delivered. During the last six months of the War, production of these heavy tanks was stopped. In the light tank field production increased progressively. A total of 3,177 Renault F.T. tanks were delivered to the Minister of War of which 2,720 reached the armies before the armistice. The anticipated deliveries indicated by the Minister of Manufactures were delayed seven months; thus the 1,600 tanks to be delivered by 30 November 1917 were not received until June 1918; and the 3,530 tanks to be completed by May 1918, were still short of the total in November 1918.

Part II of the statistics presents data on the losses of matériel and personnel in the tank corps. A striking graph shows the far greater percentage of losses suffered by the heavy tanks from enemy action. From 5 April to 2 November 1918, the medium (or heavy) tanks lost 29.7% and the light tanks 13.2% by reason of enemy antitank measures. The authors emphasize from this fact the need for smaller, heavily armored, more rapid, and more maneuverable tanks than the Schneider and St. Chamond.

A complete table is given showing in columnar form the following data: date, engagement and nature of tank action, number of tanks involved and type, extent of front; losses of tanks by cannon or minenwerfer, mines, shoulder weapons, unknown causes; losses of personnel in killed, wounded, and disappeared; and percentages and totals of each class of losses. The striking fact is that all losses of matériel were negligible except those caused by enemy cannon or minenwerfer. Of the total casualties in personnel, the percentage of killed, wounded, and disappeared, runs almost equal to the average percentage of these different losses in the entire army during the War.

The conclusions point to the necessity for having an important reserve of tanks and tank parts. They indicate that the least costly attacks are those systematically staged with supporting artillery; next come rapidly launched counterattacks, and subsequently exploitation actions. Surprise attacks without artillery preparations are usually very costly after penetrating to the hostile artillery positions. The enemy of the tank is the cannon. The mine may play an important part in any future conflict. As a whole the losses of tank personnel are distinctly less than those of infantry, but in the course of any one action there is little difference in the percentage of losses suffered by infantry and those in tank units.

#### **August 1935**

(5) **RÉFLEXIONS SUR NOS RÈGLEMENTS D'INFANTERIE: LE GROUPE ET LA SECTION DE F. V.** [Reflections on the French infantry regulations: the squad and the rifle platoon.] General Barrard

The author contends, and logically, that it is asking too much of the squad leader to correctly control and dispose the fire of the three elements that he has in his unit: riflemen, automatic riflemen, and grenadiers. Usually a man of comparatively little training and knowledge of the principles governing the use of all three weapons, he is made responsible for the proper employment of all of them. It would be far better if these components of the rifle platoon were separated into groups and the group (squad) leader specially trained in the use of the weapon of his group. Responsibility for the combination of the elements of the platoon would then fall on the platoon leader, as it logically should, for he is better able to determine how to combine the fire and movement of his unit than the noncommissioned officer in charge of a group (squad).

(6) LA 3E BRIGADE DU MAROC AU NORD DE COMPIÈGNE—SEPTEMBRE 1914. [The 3d Moroccan Brigade north of Compiègne, 13-19 September 1914.] Bénédig-Garteiser

A lively description of the continuous action of the 3d Moroccan Brigade during its first week on the front after arriving in France.

(7) TIR DES CHARS DE COMBAT. [The fire of tanks.] Major Salanie

The author comments on the slight effect of tank fire during tank attacks of the World War. The moral effect of tank attacks was the chief factor in the successes of tank actions. In November 1918, General Etienne asked a noncommissioned officer in charge of a machine gun tank how many rounds he had fired on 26 September 1918. This man, decorated with the croix de guerre for having neutralized many machine guns on that date, replied that he had only fired one belt (96 rounds).

In the future, in spite of greater speed, less mechanical trouble, and better armament, the task of tanks will be less easy. Their fire must be accurate and delivered in large volume. It is therefore essential, says the writer, that gunners and tank commanders be trained to shoot accurately and also to learn to search the ground for targets, which are extremely difficult to locate from a moving tank.

Three types of exercises are proposed for training the tank commanders in the task of finding and firing upon targets of silhouette type partly concealed by vegetation.

The action against antitank guns is also suggested. When observed, the fire of the entire platoon of tanks should be brought to bear on the hostile gun. In order to designate targets so that they can be more readily seen by the other tanks of the platoon, each tank should have a light cannon and be provided with a few smoke shells to be fired whenever it is desired to designate an antitank gun. These smoke shells will have the added advantage of blinding the enemy gun momentarily, and thus permit the tank platoon to lay and fire on it with less risk during the time required to bring the guns to bear.

(8) PREMIER MOIS DE COMMANDEMENT: VERDUN (MAI 1916)—ESTRAITS D'UN JOURNAL DE GUERRE. [First month of command: Verdun, May 1918. Extract of a war journal.] Colonel Segretain

A personal experience monograph that contains all the action, turmoil, and verbal description of the hectic days at Verdun which it is possible to crowd into 36 pages. The author includes many dialogues that amplify the realism of his narrative.

(9) INSTRUCTION DES CADRES DE L'INFANTERIE; ÉTUDE DE CAS CONCRETS. [Instruction of infantry officers and noncommissioned officers; study of concrete examples.] Lieut. Colonel Guigues

This article takes up the classroom and field instruction of infantry personnel with reference especially to the orders to be given and duties to be performed within a battalion during the ultimate part of the approach to contact.

(10) EMPLOI D'UNE SECTION DE CHARS DANS LE PREMIER ENGAGEMENT DES CHARS RENAULT—MAI 1918. [Employment of a platoon of tanks in the first engagement of the Renault tanks, May 1918.] Captain Aubert

An account of the actions of a platoon of the 304th Assault Artillery (Renault tanks), on 31 May 1918.

(11) RUSSIE: L'EMPLOI DES CHARS DANS L'ATTAQUE. [Russia: Employment of tanks in the attack.] Captain Lelaquet (See abstract, page 58)

### September 1935

(12) L'ACTION À LA GUERRE. [Action in war.] Major Quenot

An exposition on the art of commanding, which is illustrated by the example of Hannibal at Cannae.

(13) LA 33E DIVISION, LE 22 AOÛT 1914. [The 33d Division on 22 August 1914.] Colonel Bernis

A narrative of the offensive of the 33d French Division of the XVII Corps in the vicinity of Neufchateau on 22 August 1914.

(14) CHARS ET STATISTIQUE: II. LES CONSOMMATIONS EN MUNITIONS. [Tanks and statistics: The consumption of ammunition.] (II) Lieut.-Colonel Perré

In this issue the author concludes his article on the ammunition expenditure of tanks. He includes a compilation of the consumption of ammunition during the World War by Schneider, St. Chamond, and Renault tanks, which covers about 45 percent of the engagements of these tanks. His discussion covers the various factors that influence the amount of firing done by tanks. His contention is that the daily expenditure of ammunition will never exceed the carrying capacity of the tanks; that there will be no need to resupply tanks during the day; that the problem will be relatively less difficult for tanks than for infantry or artillery.

(15) POLOGNE: TANKETTE À MITRAILLEUSE LOURDE. [Poland: Tankette with heavy machine gun.]

In a recent parade at Warsaw appeared the reconnaissance tankette T.K. of the Polish Army. It seems that the Poles are moving toward a light, rapid, lightly armored tank of large radius of action. This seems also to confirm the desire of that government to acquire high speed American Christie tanks, which is explained by the geographical conditions of the country—a large country lacking good roads and means of communication.

Poland and Russia seem to be in accord on this point.

**REVUE DU GENIE MILITAIRE** (France)

By Lieutenant Colonel P.C. Bullard, Corps of Engineers

**July-August 1935**

(1) LE RAID DU CAPITAINE PICHERY EN MACÉDOINE (SEPTEMBRE 1918). [The trip of Captain Pickery in Macedonia, September 1918.]

In the latter part of September 1918, during the pursuit of the Germans and Bulgars on the Eastern Front, the question of signal communications between the headquarters of the Armies of the East and a pursuing cavalry brigade became so difficult that the commander of the armies did not hesitate to send his chief signal officer (an officer of engineers, which arm is charged with signal communications in the French army) to repair the radio at the cavalry brigade headquarters and to carry his orders to the brigade commander. This officer had to ride about 90 miles by horse, finding it necessary on the way to fire upon Bulgarian groups. In addition, during the trip, he found it necessary, as an officer of engineers, to reconnoiter a site for a river crossing and give the needed instructions to Serbian engineers for the construction of the bridge.

Of this, Marshal Franchet d'Esperey writes in part as follows: "Here is a reservist, an engineer specializing in signal communications, who must suddenly make, in unknown and difficult country, a gallant ride. In the course of the trip, he being the only officer of engineers present, his knowledge was drawn upon in connection with the repairs to pontoon equipage and in the accomplishment of a river crossing."

"What reflections might not his action incite in the minds of young officers of engineers. It shows that they can, when necessary, come forth from the specialty within which they would make a great mistake to enclose themselves.

"It is for this that I feel that his report should not be forgotten."

**REVUE MILITAIRE FRANÇAISE** (France)

By Major C.R. Moore, Corps of Engineers

**July 1935**

(1) NOTES SUR LA GUERRE DE MOUVEMENT. [Notes on war of movement.] Colonel Didelet

Modern military operations may take two distinct forms: that of "position" and that of "movement." In the former the defender controls the type of operation, assembles the necessary means for organizing one or more positions, and forces the enemy to attack him in position. In warfare of "movement" the attacker dominates the situation, pushes ahead and gives the defender no time to prepare a position. The fact that

these types of operation differ in nature rather than in degree is usually overlooked.

The ideas expressed in this article apply solely to the author's conception of warfare of movement.

During the World War there were phases of warfare of movement, also instances where one or the other of the adversaries wished to continue this form of action, but were unable to do so, owing to the lack of an appropriate system of tactics. Certain lessons can be drawn from a study of these World War operations. It is preferable to assign directions of march rather than zones of action; troops can follow a compass more easily than a map. Headquarters and the artillery must rely upon themselves for information of the location of the infantry front line. Requests for artillery support should be made by infantry battalion commanders direct to the battery commander who is to execute the fires.

The question also arises if in warfare of movement halts for rest and reorganization of units should not be made on a time schedule rather than on objective lines. Objective lines may be suited to warfare of position but should not be used in warfare of movement.

In warfare of movement each unit should push ahead without regard to liaison with units on its flanks. If gaps occur they should be filled by reserves, rather than hold up the attack, because one unit does not advance.

Troops cannot maneuver under fire; neither can they maneuver during movement to the attack. When troops have gone into action the commander has nothing to do except to see that they are supplied, and to maintain the original impulse. His thoughts should be constantly directed toward preparing measures for resumption of the advance in case his units are stopped.

In warfare of movement the infantry has little opportunity to develop its own fire-power, and therefore should rely more on artillery support than on its own fire. A portion of the artillery should be highly decentralized. Each front line battalion should have a battery in direct support.

The following new elements will strongly influence the nature of future combat:

- (a) Attacks without warning (or declaration of war).
- (b) Operations on wide fronts.
- (c) Camouflage.
- (d) Motorization and mechanization.
- (e) Chemicals.
- (f) Radio.

The effect of each of these elements is discussed and the article is concluded by an illustrative situation. (For a complete translation of this article, see the "Field Artillery Journal," November-December 1935, page 582.)

(2) L'ÉCONOMIE ALLEMANDE DANS SES RAPPORTS AVEC LA DÉFENSE NATIONALE. [The economic situation in Germany with respect to national defense.] (II) Major Lelarge d'Ervaux

Part I of this study appeared in the April 1935 issue of this magazine (see RML No. 59, page 160).

In this issue the German economic situation at the present time, as it affects national defense, is discussed under the following headings:

Present Economic Resources:

The food problem

Industrial production

Organization:

The concentration of enterprises

Nationalization of industry

Before Hitler—Nationalization by financial means

Since Hitler—Nationalization by authority

The National-Socialist economic doctrine

Nationalization of agriculture

Nationalization of industry and exchange

Attack on capitalistic and socialistic systems

The new economic set-up

Tendencies:

- Objectives. Efforts toward economic independence
- Methods employed
  - Control of consumption
  - Exploitation of national resources
  - Agriculture
  - Industry

The author concludes that Germany is now in a much better position to resist a blockade than in 1914; that the mistakes made in industrial mobilization during the World War will not be repeated; and that the present system of economic control could be applied to war conditions with very little change.

(3) CE QU'IL FAUT SAVOIR DE LA TURQUIE ET DE L'ARMÉE TURQUE. [What one should know of Turkey and the Turkish Army.] By X . . .

A brief description of the New Turkey and the progress made by its army since the War.

August 1935

(4) TROIS DÉBARQUEMENTS EN PRÉSENCE DE L'ENNEMI. [Three landings on hostile shores in the presence of the enemy.] (III) Major de Périer

This article describes the landing of Spanish forces in Alhucemas Bay, 8 September 1925. It concludes a series of three articles continued from the May and June 1935 issues of this magazine.

(5) LES ARMÉES FRANÇAISES DANS LES OPÉRATIONS OFFENSIVES DE 1918. [The French armies in the offensive operations of 1918.] (III) General Fournier

Conclusion of a series of three articles (see May and June 1935 issues of this periodical) on the offensive operations of the French armies in 1918. No conclusions are attempted since the study deals primarily with the activities of the French Armies, and does not cover the actions of the allied forces or of the enemy. In this issue the period from 26 September until the Armistice is covered. During the whole series special emphasis is given to the plans of the High Command for securing and maintaining reserves for both strategical and tactical purposes.

(6) LA SÉCURITÉ DES ARRIÈRES. [Security of rear areas.] Major Villate

After giving a number of historical examples of demolitions performed by small detachments of German engineer troops moving in trucks far from their main forces, the author develops a plan for protection of the Department of the Somme against such raids. He estimates that about 11 companies (approximately 1500 men) armed with machine guns and automatic rifles and operating in cooperation with local police, would be required to provide an effective defense.

September 1935

(7) PASSAGE DE VIVE FORCE DU SAN EN MAI 1915. [Forced crossing of the San in May 1915.] General Baills

This is an interesting technical description of the crossing of the San River in the vicinity of Jaroslaw, Poland, by the German VI Corps, 16 May 1915.

General Baills praises the skill and training of the German and Austrian engineer troops in this operation. He believes that the motorization and mechanization of modern armies, the increased weight of modern vehicles, and the necessity for rapid surprise attacks will throw many difficult tasks on the engineers, which they can perform successfully only if they have had thorough training in similar work in time of peace.

(8) INFLUENCE DES MODIFICATIONS DE L'ARMEMENT OU DE LA TACTIQUE SUR L'ORGANISATION DU SERVICE DE SANTÉ EN GUERRE. [The influence of changes in armament or in tactics on the organization of the Medical Service in war.] General Toubert

The author emphasizes the importance of the time element in the treatment of men wounded or gassed. He suggests the possible use of "bullet proof" vests for reducing the number of casualties.

(9) LES SYSTÈMES FORTIFIÉS DANS LA DÉFENSE DE LA FRANCE DEPUIS 300 ANS. [Fortification systems for the defense of France during the past 300 years.] (I) Major Montigny

(10) LIAISON DES ARMES. LA LIAISON INTELLECTUELLE. [Liaison between arms of the service. Intellectual liaison.] Lieut.-Colonel Aubert

An interesting account of the usual complaints of each arm that its problems are not appreciated by other arms, and that the staff does not understand its powers and limitations. The author suggests that officers be required to serve a tour with other arms and prove their ability to command in general maneuvers before being assigned to high commands.

### REVUE MILITAIRE SUISSE (Switzerland)

By Major F. During, Infantry

July 1935

(1) L'ORGANISATION DES BATTERIES ET DES ÉTATS-MAJORS DE L'ARTILLERIE DE CAMPAGNE. [Organization of field artillery.] Lieut.-Colonel de Montmollin

This is the concluding article on field artillery organization. The author compares the organization of the regimental and brigade artillery staffs of Switzerland, Germany, France, and Italy, before and after the War. He also deals with ammunition supply.

August-September 1935

(2) DÉFENSE AÉRIENNE. [Antiaircraft defense.] Colonel Bandi

This article deals with the antiaircraft defense of Switzerland. The author states that good observation service forms the basis of all anti-aircraft defense and Switzerland has placed observation posts all along the frontier, which are provided with listening instruments for use in fog or at night. The instruments have the important task of furnishing the required information to antiaircraft guns without the use of searchlights, which should be spaced at intervals not exceeding 2 to 2½ miles. The author also discusses the passive defense, which he believes should be (a) the instruction of the population, (b) preventive measures such as camouflage, etc., and (c) preparation of shelter.

(3) FORTIFICATIONS. [Fortifications.] Colonel Lecomte

The author gives a resumé of an article recently published by the "Journal Militaire Suisse" by Colonel Rebولد, on the subject of Swiss fortifications since 1815. France and Belgium have fortified their frontiers against Germany; therefore it may be expected that in a future war these fortifications might force a warring nation to pass through Switzerland, which nation intends to complete her system of fortifications by new works.

(4) ÉTUDES SUR LE COMBAT. [Study of combat.] Captain Frick

Captain Frick gives us some abstracts of Colonel du Picq's book, "Etudes sur le combat," which was published during the last century. The remarks on the psychology of the soldier are interesting. Centuries have not changed human nature. Armament being equal, surprise is necessary for victory. Reverting to ancient history, the Romans were not better fighters than their opponents, the Gauls or Teutons. They were better disciplined and their leaders understood human nature. They used only a small number of men in the front line, but some distance in rear were supports and reserves who were seasoned troops. The Greeks knew the value of supports and reserves, but played them too close to the front line.

The article contains an interesting account of the battle of Cannae, which shows that Hannibal, who understood the value of his troops, was the greatest leader of ancient times. The author concludes with a study of the modern soldier.

**RIVISTA DI ARTIGLIERIA E GENIO** (Italy)

By Major F. During, Infantry

**June 1935**

(1) LA SCIENZA, L'INDUSTRIA E LA TECNICA MILITARE. [Military science, industry and technique.] Colonel Sarracino

A brief discourse on the advance made in recent years in science and industry, as affecting the army and particularly the artillery.

(2) IL GRUPPO COME UNITÀ DI TIRO. [A group as fire unit.] Major Raudino

The author discusses the merits of a proposal made by some French writers to adopt a group of three batteries as the first unit, instead of the battery. He shows that such concentration is possible and convenient. Nevertheless, the battery remains the fundamental unit, even if the tendency is to keep fire control in the hands of group commanders.

(3) L'ARTIGLIERIA DEL GIAPPONE. [The Japanese artillery.]

This article is a description of the Japanese artillery, based on Russian sources. Each Japanese division has one regiment of light field artillery. It is contemplated to introduce into each battalion a company of heavy machine guns and a battery of battalion artillery consisting of two 37-mm. guns and two 70-mm. Stokes mortars. Each regiment is to have a four-gun battery. The division artillery has the 75-mm. guns and the 105-mm. howitzers. There is no corps artillery. Army artillery consists of 105-mm. guns, 150-mm. howitzers, and 240-mm. heavy howitzers.

**July 1935**

(4) LA GRANDE UNITÀ COLONIALE E LA SUA ARTIGLIERIA. [The colonial division and its artillery.] Brigadier General Nasi

General Nasi discusses the organization and tactical employment of a colonial division and its artillery against an enemy who is assumed to be weak in artillery and is likely to use guerrilla warfare. Ordinarily, only pack artillery will be allotted to divisions. Corps artillery will consist of light motorized artillery, provided the nature of the country permits this; otherwise, corps artillery should also consist of pack artillery.

(5) L'ARTIGLIERIA TEDESCA NELLA GRANDE GUERRA. [The German artillery during the World War.] Major Raudino

According to the author, the German artillery differed, in several ways, from that of the Allies. All of the artillery was allotted to divisions, even the heaviest guns. There was no higher artillery command than the division artillery commander. The field artillery was armed with a 77-mm. field gun (1896 model) and a 105-mm. light field howitzer (1898 model). In addition, there was a powerful artillery of heavy mobile howitzers for the reduction of fortresses. On the completion of mobilization, the artillery consisted of 1,069 batteries with 6,326 pieces, which comprised 5,096 guns and 1,230 howitzers.

Many comparisons have been made between the German 77-mm. field gun and the French 75-mm. gun. The German gun appears to have given better results in mobile warfare, while the longer trajectory of the French 75-mm. gun gave the latter an advantage in position warfare. In 1916 the Germans adopted a new field gun and a new field howitzer whose trajectories were considerably longer than those of the older models.

A detail is given of other types of guns in use in the German Army, and in the latter part of the article the author deals with the employment of artillery. From the outset the Germans dwelt on the importance of surprise, and their preliminary bombardments were much shorter in duration than those of the Allies. As the war dragged on, the views of the Allies changed in this respect, and preliminary bombardments were shortened and, in some instances, omitted altogether.

(6) LA MORTE DEI CANNONI SUL CAMPO DI BATTAGLIA. [The damage to cannons during the World War.]

This is a resumé of an article that appeared recently in the "Mémorial de l'Artillerie Francaise," on the damage done during the World War to guns by (a) direct enemy action, (b) accidents during firing, (c) wear

and tear. Up to 17 December 1914, most of the damage was caused by enemy action, the proportion of (b) and (c) being comparatively small. After that date the percentage of guns damaged by enemy fire gradually diminished, while that of accidents tended to increase. The guns referred to are mainly French 75-mm.

**August-September 1935**

(7) LE GRANDI MANOVRE DELL'ANNO XIII. [Italy's grand maneuvers in 1935.] Colonel Biondi-Morra

This is a brief account of the Italian maneuvers held in August 1935 in four different sectors. Most of the operations were carried out in difficult mountainous country. A point on which foreign observers commented was the effective concealment of the troops during the maneuvers.

**ROYAL AIR FORCE QUARTERLY (Great Britain)**

**January 1936**

(1) BOMBER FORMATIONS IN THE NEXT WAR. Flight-Lieutenant MacDonald

The author recommends a new organization for bombing squadrons.

(2) ARMAMENT AND AIR GUNNERY

This is a summarized translation of a recent article by Commandant Le Roux, which was published in the official organ of the French Air Ministry. In this fairly comprehensive survey of the essential problems of aircraft armament and air gunnery the author recommends the use of tracer projectiles as a means for regulating fire from ranges in excess of 200 yards and shows that the adoption of this new ranging method would allow remote-controlled machine guns to be installed in firing positions away from the gunner.

**ROYAL ARMY SERVICE CORPS QUARTERLY (Great Britain)**

**November 1935**

(1) NOTES ON S. & T. APPRECIATIONS

A form for an estimate of the situation pertaining to supply.

(2) THE OPERATION OF MECHANICAL TRANSPORT IN DESERT COUNTRY

An article describing the differences in the use of motorized vehicles in a country having adequate facilities for motor travel and in a country where heat is excessive and the terrain undeveloped.

(3) A BRIEF OUTLINE OF THE SUPPLY AND TRANSPORT PROBLEMS OCCASIONED BY THE OPERATIONS IN THE NORTH-WEST LIBYAN DESERT, 1933-34

The author portrays vividly the problems encountered in the establishment of posts in Kharkour Mour Wells at Oweinat and Merga Oasis in the South Libyan Desert, and concludes that (a) the vehicle depreciation is out of all proportion to mileage in protracted desert operations; (b) that the expense incurred in providing correct vehicle equipment suitable for desert use is money well spent; (c) that high engine power to vehicle weight ration is essential to desert work; and (d) that the size of the transport organization necessitated by an ever increasing line of communications can assume such proportions that each man in the line of evacuation may require a vehicle to feed him, which was nearly true in these operations.

**ROYAL ENGINEERS JOURNAL (Great Britain)**

**December 1935**

(1) R.E. CO-OPERATION WITH THE TANK BRIGADE. Captain Edwards

The author discusses the problems of the engineers when the tank brigade is acting independently, and the organization which should be adopted for the solution of these problems. The missions for engineers will be: offensive demolition, defensive demolition, removal or surmounting of obstacles, rafting and surmounting of craters. The first three items should be done by a detachment of 24 to 30 engineers, travelling in tanks, with

tools, explosives, and other equipment. The last two should be carried out by a detachment of division engineers of the mobile division of which the tank brigade is a part. Bridging operations can never be the responsibility of the tank brigade alone. It will be a function of the mobile division and its engineers.

Captain Edwards recommends that the organization of the mobile division engineer be such that it can detach for all independent missions of the tank brigade the necessary personnel with the requisite technical qualifications and armed with the necessary tools and equipment to accompany the tank brigade.

In order to achieve flexibility the author considers that the organization should be along the following lines:

- (a) Headquarters section.—Group "A" consisting of administration unit, lighting set and work shop truck.  
Group "B"—Bridging stores.  
Group "C"—Explosives and tools.  
Group "D"—Transportation.
- (b) A number of homogeneous sections, each with its own field tools.  
All should be fully mechanized.

(2) WATER SUPPLY IN A DESERT COUNTRY. Captain Bagnall-Wild

The author discusses the water supply problems that will confront a small mechanized force operating in desert country, and the organization and equipment of engineer units which should accompany such a force.

He concludes that the water supply, although of great importance, is not a factor which limits the mobility or efficiency of the mechanized force. The great mobility of mechanized forces increases the difficulty of solving many supply problems, but it seems that the water supply problem of such a force operating in a desert country is simpler than that of a non-mechanized force on the same mission.

**SANCT CHRISTOPHORUS (Germany)**

By Lieutenant Colonel S.J. Heidner, Infantry

July 1935

(1) HEERE VON MORGEN—HEERE DER ZUKUNFT. [Armies of tomorrow.]

This article is in effect a review of Lieutenant Colonel Nehring's book, "Armies of Tomorrow." The writer of the article accepts as a fact the important role that the motor and mechanization must play in any modern army. He advises that we stop talking about the things that motors can't do, and turn to working out the best methods of employing them in the army. He makes the observation that, due to the increasing use of motors in industry and farming, the reserve of horses that the army can call upon in time of war is continually getting smaller, and that it will take much longer to raise horses than to build motors.

(2) KAMPFWAGEN UND FLIEGER. DIE MODERNEN ZUKUNFTSWAFFEN. [Tanks and aviation; the modern weapons of the future.]

Tanks and aviation have this in common that they can both be used in mass to strike deep into the enemy's disposition for a decisive blow. It is unthinkable that they will not be used together in closest liaison.

(3) DAS NEUESTE ÜBER DIE HEERESMOTORIZISIERUNG IN FREMDEN HEEREN. [Latest data relative motorization of foreign armies.]

(a) Tanks.—In Russia amphibious tanks are actually being used in maneuvers for river crossings. The amphibious tanks are the first elements to cross the river. After crossing, they keep up a mobile fight, and thus constitute a bridgehead to cover the crossing of other troops. The article shows a picture of a platoon of five of these tanks crossing a river.

In Great Britain the basic tank is to be the 16-ton medium Vickers tank. This tank is armed with a 47-mm. cannon and three machine guns. It has a speed of 18 miles per hour. The British have on hand a number of light Vickers tanks, Models I-A, II, and II-A. These tanks weigh from 3.5 to 4 tons, have a speed of 31 miles per hour and a cruising radius of

125 miles. They have 7-mm. to 13-mm. armor, and are armed with a machine gun in a revolving turret. The British also have a Model M-II, 4.5-ton tank with the same armor and speed as the tanks just mentioned. It can climb a grade of 45°, can cross a ditch 1.6 yards wide, and surmount an obstacle .58 yard high. These light tanks can all be manufactured comparatively cheaply. There is also, in the British Army, a small Vickers reconnaissance tank that weighs 2.2 tons, has 7-mm. to 11-mm. armor, and a speed of 30 miles per hour.

In France, the mass of the tank units are equipped with the light Renault tank. Of these, the latest is the "AMR" type. It is a 6-ton convertible tank, having a speed of 22 miles per hour on wheels and 18 miles per hour on treads. It carries a crew of two. France is also experimenting with heavy tanks of 75 and 92 tons. The latest of these is the 92-ton Type D tank. It has a 155-mm. howitzer and two 75-mm. guns, and an antiaircraft machine gun mounted in two turrets placed on the opposite ends of a diagonal. Mounted in the body, there is a 155-mm. gun and 11 machine guns. The tank is designed for a crew of 19.

(b) Armored cars.—Russia has produced the first known amphibious armored car. It is a 6-wheel type, has a 37-mm. gun mounted in a 360° turret, and two machine guns of limited traverse, one forward and one aft.

Great Britain has recently introduced the Lancaster M-32 armored car. It is a 6-wheel affair, weighs 6.75 tons, has a speed of 45 miles per hour and a cruising radius of 200 miles. It has 6-mm. to 8-mm. slanting armor, three machine guns in a turret and one to the left of the driver, and is designed for a crew of four. A novel feature is a little observation turret sticking up above the center of the machine-gun turret.

(c) Motorization of armies.—The British War Department has ordered from the Associated Equipment Company an 8-wheel truck with remarkable cross-country ability. It can turn on a short radius because the two front axles are movable and linked to the steering gear. Fully loaded, it weighs 15 tons, and has a speed of 35 miles per hour.

According to British press reports, the French mechanized division is organized as follows:

Headquarters

A tank regiment of two battalions of light tanks

A motorized infantry regiment of three battalions, one being carried on cross-country vehicles and the other two on commercial trucks

A motorized artillery regiment of four battalions, one being armed with 105-mm. guns

A reconnaissance detachment composed of an armored car unit and two motorcycle units armed with machine guns

Attachment of an organic air service unit is considered essential. Anti-mechanized gun companies are found in the infantry and artillery regiments and with division headquarters

In the train there are: a field hospital, two fuel tank companies, two mobile repair shops, and a truck train of 60 trucks.

Motorcycles are supplied liberally to the infantry and artillery regiments to replace riding horses.

Italy is organizing two "mobile" divisions and separate "mobile" detachments to be assigned to corps. The divisions are organized into two brigades: the first composed of cavalry, cyclists, and horse artillery, and the second of light tanks, motorized infantry, and artillery. It is the idea to use these mobile divisions in conjunction with aviation to strike the decisive blow deep into the enemy's dispositions.

Belgium is supposed to have a new 47-mm. anti-mechanized gun available for issue to infantry regiments and to divisions. The guns are drawn by light cross-country tractors. It is planned to emplace them at about the depth of the battalion command posts in the infantry regiments. The divisional unit will initially be kept mobile, and will be pushed forward to about the position of the most forward batteries when a threat develops.

August 1935

(4) DER PANZERKRAFTWAGEN—DAS NEUZEITLICHSTE ERD-AUFKLÄRUNGSMITTEL. [The armored car—the latest means for ground reconnaissance.]

This article stresses the great importance of the armored car for ground reconnaissance. Such vehicles must habitually follow the roads in order to move with the speed necessary for quickly carrying out a reconnaissance of extended terrain. In the vicinity of the enemy they must expect to run into road blocks and antitank weapons. To move around such obstacles the vehicles must have cross-country ability. To escape from a suddenly appearing antitank gun, they must be able to reverse and move with full speed to the rear. The article contains interesting photographs of French Berliet 4-wheel and 6-wheel combat cars.

(5) UEBER ZUSAMMENWIRKEN MECHANISIERTER VERBÄNDE MIT FLIEGERN. [Concerning the cooperation between mechanized units and aviation.]

This article is a review of a Russian article in "Mechanisazja i motorisazja RKKA." The cooperation of air and mechanized units finds its expression in the fact that the two weapons, acting independently, can strike the enemy successively from the air and the ground in furtherance of the same mission. Both can assist the remainder of the army in the destruction of the enemy. Aviation, though not directly attached to mechanized units, assists their advance by direct attacks on the enemy, and by performing reconnaissance and battle missions.

The author takes up successively the different tasks that mechanized units may be called upon to perform, and lists under each of them the assistance that may be expected from aviation. In conclusion, the author states that for the profitable cooperation of aviation and mechanized units the following is important:

- An appropriate division of tasks between the two arms;
- Continual instruction of both aviators and mechanized personnel in the capabilities of the other arm;
- Preparation of landing fields by the mechanized units;
- Assignment of liaison officers;
- Objectives not too restricted for the aviation.

(6) KAMPFWAGEN-VERWENDUNG IN DER VERTEIDIGUNG. [Employment of tanks in the defensive.]

The tank is an offensive weapon that, according to the opinion in foreign armies, is used to break through a hostile position or to strike deep into the enemy dispositions from the flank or rear. However, there will also be situations for the employment of smaller tank units in the defensive to prevent, by counterattack, a hostile penetration or breakthrough, or when the enemy has established himself in the friendly position, to counterattack in connection with other arms in order to restore the position. In this connection it is apparent that tanks will be used only when it is important that the lost terrain be recaptured, and that the tanks will be used offensively. To have tanks bristling with cannon used as a stationary defense weapon, is entirely contrary to the spirit of this weapon.

In a Russian technical journal ("Mechanisazja i Motorisazja" 3, 34, Slevaki, author) this question is gone into thoroughly, and the different possible cases are discussed. The author assumes that tanks will be necessary in the counterattack when fighting a well equipped enemy, and that such employment will greatly raise the morale of the defenders. The following cases are considered:

(a) The Employment of Tanks Against Hostile Infantry.—Under this heading four possible situations and their solutions are discussed:

(i) The employment of small tank units in cooperation with small infantry units in a counter-thrust to quickly recapture a position taken by the enemy, and thus prevent him from consolidating his newly gained ground. In this case the infantry will be supported directly by the tanks; the two will work in close unison. One can picture in this case the tanks employed by platoons, each tank followed by a squad of infantry. This

method of employing the tanks is considered suitable when there is not time enough to organize a coordinated counterattack.

(ii) The employment of tanks for a quick thrust at hostile reserves. This will be the most frequent and most profitable occasion for their employment. For this purpose the tanks may attack in conjunction with infantry with a view to destroying the hostile reserves, or they may attack alone, in which case they may only hope to scatter the hostile reserves. For this employment, tank units larger than platoons are considered necessary.

(iii) A counterattack by tanks and especially organized assault squads. For this method of employing tanks a situation is assumed in which the enemy has made a deep penetration and is threatening a flank movement. The counterattack is directed against such a flank with infantry and tanks on the same line, the tanks operating on the outer flank. The remainder of the defending troops benefit by this diversion to restore the position; they also support the counterattack by fire. It is also possible, in this case, for tanks to attack alone, or to be followed by infantry.

(iv) A tank attack against hostile troops ready to "jump off" for an attack. This should be a profitable method of employing tanks. This situation requires that the enemy's intention to attack be discovered in time, and that his preparations can be accurately determined.

(b) Employment of Tanks Against Hostile Armored Vehicles.—The occasion to use tanks for this purpose in the next war will occur frequently if not daily. The defender will have the advantage of knowing the terrain. Even though he is weaker than the attacker, he should be able to pick the right time and favorable terrain, down grade, for example, for an attack that will be effective against the hostile flank.

(c) The Employment of Tanks Firing From a Stationary Position.—This article stated at the beginning that the proper employment of tanks in the defensive is by offensive action. However, there will be a few occasions where tanks will fire from stationary positions. The author sees two such cases:

(i) When tanks alone have to hold a sector for some time. In this case some concealed stationary tanks may fire on the enemy and fix him while the remainder of the tanks make a counterattack from a flank.

(ii) Surprise bursts of fire against hostile infantry or tanks. For example, take the case where tanks have captured their objective and are reorganizing in hostile territory for a further effort. Here, in order to guard the assembly area, certain tanks might be stationed in concealed positions prepared to cover the area with fire.

There is no doubt, the author says, that the employment of tanks in this manner will be practical in many cases. However, it is important that the tanks fire for only a short period from such a stationary position in order to prevent their destruction by hostile fire.

The author concludes by again calling attention to the great possibilities of tanks in the counterattack because the time and the terrain can be chosen for their best employment. They can strike the enemy before he has had time to organize the ground that he may have captured. If the defender takes advantage of this moment of weakness in the attacker to launch his tanks in a counterattack, he should gain decisive results.

#### September 1935

(7) DEUTSCHLAND HAT WIEDER PANZERWAGEN. [Germany has tanks again.]

According to the author, it is not generally known among the German people that Germany had tanks in the War and employed them on numerous occasions, and still fewer people know that German tanks took part in the offensives of 1918 with good, sometimes decisive, results. It was officially recognized during the War that the employment of the German tanks in the defensive battle of October 1918, had been particularly successful. For example, on 11 October 1918, their employment helped to make possible the holding of the Cambrai salient for the period that general headquarters had intended. Neither is it widely known among

the Germans that from the middle of the year 1918, nine German tank units were available, and that they were all employed. Three of these units were equipped with German A7V tanks, and six with captured British Mark IV tanks.

Some important data may be of interest:

(a) The German A7V tank was the heaviest tank used in the World War. It weighed 35 tons. It was also the most heavily armed, carrying 6 heavy machine guns, a 57-mm. cannon, and a crew of 26. Moreover, it was the fastest tank, being able to make a speed of 10 miles per hour over favorable terrain. This was the speed of the fastest German trucks in the World War. If later the press commented on the insufficiency of these tanks, the author states that, based on above facts, the German tanks were the best tanks to appear on the front during the World War.

(b) It is little known, too, that the captured British Mark IV tanks were remodeled by German engineers. On the British side it required four men working together at the command of the chief driver to operate the various levers, etc., necessary for steering the tank. German engineers quickly changed the tank so that—as in the case of the A7V tank—it could be steered by one man.

When the World War was lost, the German tanks were either riddled with bullets or given over to other countries. In this way Poland got the A7V tanks and Sweden a number of light German tanks which had been completed too late to be employed at the front.

(8) SCHWIMMKAMPFWAGEN UND IHRE VERWENDUNG. [Amphibious tanks and their employment.]

This is another short article (see No. 3, July 1935, "Sanct Christophorus," preceding) on the practicability of amphibious tanks. It again tells about the Russians using such tanks in maneuvers, and contains a picture of eight such tanks crossing a river.

#### SIGNAL CORPS BULLETIN

January-February 1936

(1) THE PROBLEM OF SIGNAL COMMUNICATION FOR THE GHQ AIR FORCE. Lieut. Colonel Lewis

Colonel Lewis has written a timely article on the problems of signal communications for the GHQ air force and makes some pertinent recommendations as to where the Signal Corps personnel fits into the air force picture.

(2) THE BEST RADIO WAVELENGTH FOR THE FIELD ARTILLERY. First Lieutenant Wrockloff, Jr.

The author discusses in this article the subject of radio wave lengths with a view to applying the most suitable to the problem of radio communication in the field artillery.

(3) OBSERVATIONS ON SIGNAL COMMUNICATIONS DURING THE 1935 FIRST ARMY MANEUVERS

A very interesting article in which the unknown author discusses some causes why the signal communications in the First Army was not as successful as it should have been. His conclusions are pertinent.

#### WISSEN UND WEHR (Germany)

By Major G.J. Braun, Infantry

July 1935

(1) ZUR FRAGE DES FLOTTENEINSATZES IM KRIEGSJAHR 1914. [The question on the utilization of the fleet in 1914.] Rear Admiral Assmann

The author, in his lecture given before the German Society for Military Politics and Military Education on 27 May 1935, answered those who criticized the German naval policy of 1914 for not risking battle with the British fleet in 1914 when the British superiority was not so great. He discussed the necessity of preserving the fleet as a defense of the Baltic and as a threat and defense against landings on and blockade of the German

shores. He covered the great disadvantages to the German fleet if they left the vicinity of their bases to engage the British fleet, showing the strategic location of the British fleet and the geographic difficulties of reaching the open sea for a battle. He called attention to the submarine successes against large naval vessels. Admiral Assmann emphasized the ease of giving post mortem criticism when the cards are all on the table, compared with decisions necessary when the cards are face down.

(2) GEDANKEN ÜBER DEN DURCHBRUCH AUF GRUND DES SOMMERFELDZUGES 1914. [Thoughts of the breakthrough based on the summer campaign of 1914.] Lieut. Colonel Müller-Loebnitz

The author discusses the Schlieffen ideas of wide fronts and wide envelopments, explaining how these were scoffed at by his critics and misunderstood by many of his adherents. He relates how his successor failed to follow his ideas, or altered the plans and failed. The French even went over Schlieffen one better by organizing a front from the North Sea to the Alps dotted with a line of forts and fortified areas and a few gaps.

Colonel Müller-Loebnitz describes some of the breakthrough attempts, especially the one at the gap of Charmes. This had been the topic of instruction for the German Army before the war. Here the French made no attempt to close the gap because of its natural defensive terrain features of successive rivers, dense forests, and flank threat of Epinal and Toul. Other breakthrough attempts are discussed in this article.

(3) BEI EINER DEUTSCHEN ANGRIFFSDIVISION WÄHREND DREIER OFFENSIVEN DES JAHRES 1918. [With a German attack division during the offensives of 1918.] (III) General v.Bergmann

In this installment General v.Bergmann relates the experiences of a German attack division in the offensives of the latter part of 1918. General v.Bergmann, the division commander, mentions the preparatory training exercises for the crossings of the Aisne and the Vesle prior to the German drive to the Marne in July 1918. As part of Corps Conta (IV Reserve Corps) it was operated southeast of Epernay. The surprise element of the Chemin des Dames offensive was lacking for the Marne offensive and was met by strong hostile opposition. All gains were costly in lives. His views of the events of this campaign are to the point and illuminating.

(4) MACHT UND MÖGLICHKEITEN DES BRITISCHEN UND DES FRANZÖSISCHEN WELTREICHES. [Power and possibilities of the British and French empires.] (II) Colonel v.Xylander

The article covers the political and strategic aspects of the colonial possessions comprising the empires of Great Britain and France. The author discusses the communications problem by air and sea to these possessions and the effect the loss of any colonies would have on the homeland. He also covers the importance of the Gibraltar Straits and the Mediterranean Sea to both countries in relation to their African possessions.

August 1935

(5) NEUZEITLICHE KRIEGSGESCHICHTLICHE FORSCHUNGSMETHODEN. [Modern military history research methods.] Major General von Haesten

Count von Schlieffen, speaking before the Military Academy, 15 October 1910, said that anyone desiring to attain high military skill must know military history from which he will learn "how it happened, how it had to happen and how it will happen again." The Versailles Treaty abolished the German General Staff so the Germans organized the Reichsarchivs in 1919 to study the World War. They received an immense amount of material (about two million documents) to organize and file. In the research on the War of 1870-71 many gaps occurred; fact, opinion, and hearsay had to be separated so that accurate data became available and would withstand all critics.

At the outset of the war in 1914, orders were issued that at the end of all operations all records were to be forwarded to Berlin for compilation. Officers incapacitated for front-line service inspected these for gaps and started a search for the missing records. This was especially necessary because the constant shifting of troops from one front to another would

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have confused records. Immediately upon the establishment of the Reichsarchivs in 1919 the Germans organized their military history research department for scientific research of every operation and all technical phases of the war. Great use has been made of source material, letters, diaries, reports, sketches, orders, etc., both official and unofficial. Every effort is made to accurately depict what happened, why it happened, etc.

(6) ABESSINIEN. [Abyssinia.] Papenhusen

See abstract, "Review of Military Literature," No. 59, December 1935, page 27.

(7) DAS LUFTSCHIFF ALS KRIEGSFAHRZEUG IN VERGANGENHEIT UND ZUKUNFT. [The airship as a military conveyance in the past and future.] Pochhammer

The author discusses the loss of the airship "Macon" and its effect on public and military opinion as to the feasibility of this type of craft for military and naval use. He covers the potential possibilities of this type of airship, capable of crossing oceans, in the Pacific especially, in the event of war between the United States and Japan.

During the war and also at present it is difficult to train airship commanders and crew due to the dearth of instructional matter available and ships. Officers detailed to take flights on them or for service with them, state that they can be brought down by artillery or rifle fire.

The author relates the role of the airships during the war in cooperation with German high sea fleet, and combatting hostile submarines and the mine-sweeping activities. By their cruising and reconnaissance ability they were able to watch the sea lanes against approach of hostile fleets and thereby do the work of several naval cruisers.

The author endeavors to show the effectiveness of these lighter-than-air dirigibles. He mentions the opposition of the heavier-than-air group and the public's lack of confidence in them due to the loss of a number of great airships during the war and immediately thereafter. He calls attention to the number of large warships lost at the Dardanelles operation and other operations and how public confidence in warships is still maintained. The author is a firm believer in the airship and its possibilities as a military craft and trans-oceanic conveyance.

**September 1935**

(8) DIE SPANNUNG ZWISCHEN DEN VEREINIGTEN STAATEN VON AMERIKA UND JAPAN. [The tension between the United States and Japan.] Colonel Hayner, Retired

A most interesting and well prepared article reviewing the history of the inevitable tension between the United States and Japan relative to the Far East differences. The author as an outsider gives his unbiased analysis of the causes of this tension, population, immigration restrictions, potential markets of China and need for expansion to become self-sustaining. He has carefully shown how China has become the focal center of attention in the dispute; her immense markets, potential exploitation possibilities and buffer position have made her so. He shows how the balance of power would endanger occidental efforts and hopes, should China and Japan become friendly. It would be 80 million Japanese plus 400 million Chinese against 120 million Americans and 140 million Russians.

(9) BEDINGUNGEN DER FOLGEBEREITSCHAFT DES SOLDATEN IM KAMPF. [Requirements of leadership of soldiers in battle.] Bogen

This article endeavors to picture the conditions in modern warfare when initiative and leadership of the individual soldier is required. The author's initial question is answered: "Will the soldier of the future war, under stress and suffering, be able in the crucial moment of offense or defense to carry out his mission as required for the situation? Will he have strength enough to obey orders, to operate not mechanically, but effectively and intelligently, his weapons; and should his commander fall, will he be able to assume command and carry on?"

(10) STRATEGIE UND GESCHICHTE. [Strategy and history.] Schmitt-henner

Strategy as an art, its ideal example and examination of same in reality.

This article is based on the author's book, "War and Military Leadership in the Course of the World's History," and covers the argument about the Cannae idea in military leadership.

(11) DER SEYDLITZ VON MORGEN. [The Seydlitz of tomorrow.] Count Pückler-Burghaus

A cavalryman's eulogy of the dash and leadership of Seydlitz and the need for men of his caliber and leadership for the service of Germany today.

(12) ZUGMASCHINEN. [Tractors.] By "\* \* \*"

A treatise on tractors of various types (with tracks, without tracks and half track), used to haul trailers, guns, etc. The author describes their use by various nations in the supply trains, ammunition trains, in motorized and mechanized units.

(13) EIN DOPPELTER DONAU-ÜBERGANG. [A double crossing of the Danube.] (I) Dr. Strutz

An account of the Balkan campaign when Germany endeavored to relieve the pressure on Turkey. Serbia had to be decisively crushed to establish communications with Turkey. The article describes General Mackensen's crossings of the Danube under extreme difficulties when a sudden rise of the stream, due to unprecedeted rains, separated the forces while the crossing was in progress.

## Section 5

# Academic Notes

THE COMMAND AND GENERAL STAFF SCHOOL

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REPRINT OF CURRENT SCHOOL MATERIAL, WHICH AFFECTS  
INSTRUCTIONAL PROCEDURE OR TACTICAL DOCTRINES

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### Instructional Organization

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*Commandant*  
BRIGADIER GENERAL H. J. BREE

*Assistant Commandant*  
COLONEL W. B. BURTT

*Secretary*  
LIEUTENANT COLONEL W. R. NICHOLS

#### *Directors*

Second-Year Class.....COLONEL W.B. BURTT (Acting)  
One-Year Class.....COLONEL J. A. MCANDREW  
Special Class and Extension Course....COLONEL R. TALBOT, Jr.

#### *Chiefs of Sections*

I. Offense.....LIEUTENANT COLONEL J. E. SLOAN  
II. Intelligence and Special Operations.....LIEUTENANT COLONEL J. H. HOOD  
III. Defense and Security.....LIEUTENANT COLONEL W.M. GRIMES  
IV. Supply and Administration.....LIEUTENANT COLONEL T. LAWRENCE  
V. Publications .....LIEUTENANT COLONEL E. B. WALKER



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## SECURITY OF AN INDEPENDENT FORCE AT REST

[4 February 1936]

1. An independent force under modern conditions can be regarded as secure from surprise only when protection is furnished in all directions.
2. Methods of protection will vary with every situation. All forms of attack which the enemy can deliver must be considered. Normally there will be three contingencies:
  - a. Protection when beyond striking distance of the enemy's main forces.
  - b. Protection when within striking distance of the enemy's main forces.
  - c. Protection during battle.
3. PROTECTION WHEN BEYOND STRIKING DISTANCE OF THE ENEMY'S MAIN FORCES.—
  - a. A force beyond striking distance of the enemy's main forces is not likely to be subjected to coordinated attack by infantry supported by other arms since to attack without reconnaissance is a hazardous operation.
    - b. The force in such a situation will, however, be liable to air raids, raids by armored cars and tanks, by troops brought up in mechanical transport under cover of darkness, and by wholly mechanized units. Adequate measures for protection against this form of hostile action must therefore be taken.
      - c. The normal procedure will be to block all roads or other avenues of approach leading from all directions into the area in which the force is halted. Antitank defense inside the line of road blocks will be provided for by the coordination of the antitank weapons and artillery.
      - d. Regiments and battalions will bivouac in echelon with respect to all directions from which attack is possible, with detachments posted to block the roads and other approaches. The strength of these detachments will vary with the situation but they should be kept as low as possible in order that the greatest number of troops may be kept under cover and rested. Normally the strength of each detachment will vary between a platoon and a company—with or without machine guns attached, and with antitank guns—posted inside the line of road blocks. Barricades or road blocks will be placed on all roads and approaches leading into the area and will be defended by fire. The location of these barricades or road blocks will indicate the outpost line (OPL). In addition to the force for protection of the road blocks and barricades, if conditions warrant, a small additional force should be placed in a favorable defensive position inside the line of road blocks for the purpose of patrolling and offering resistance to any enemy attempts to break through. By day machine guns may be used to cover the gap between detachments guarding the main approaches; by night they may be used either singly or by sections to provide concentrated fire on any well defined target such as a bridge, or on lines of advance which might be used by the enemy. Special arrangements will be necessary for their local protection when used singly.

Every battalion of the independent force must be clear as to its action should any form of a hostile attack take place. All units will have definite alarm posts and be so disposed that they can act, if necessary, on short notice either defensively or in counterattack.

e. Similar defensive measures will be taken by artillery troops in rear. They will be allotted areas in which they will be responsible not only for their own protection but for that of any of the services of supply and maintenance within these areas. Coordination of these measures by the artillery brigade commander will be as necessary as that by the infantry brigade commanders in their respective areas. Road blocks constructed on the main supply road in rear should be so erected that traffic can pass through them at a very slow pace.

4. PROTECTION WHEN WITHIN STRIKING DISTANCE OF THE ENEMY'S MAIN FORCES.—a. An independent force halted within striking distance of the enemy's main forces is liable to attack by infantry supported by artillery and other means. It must therefore be deployed to an extent sufficient to meet any form of possible attack and be so disposed with regard to its frontage that it can fight quickly if attacked. The outpost in this case will consist of a force in front of the enemy in addition to the road blocks with their protective forces. The force commander will indicate the position to be occupied by the main body and by the outpost force or forces and coordinate the general line to be held by the outpost. The outpost position must secure any ground essential to carry out the plan of battle.

b. Unless the two forces are actually in contact the enemy can not expect to launch an important attack with responsible prospect of success until he has had time to reconnoiter. It must be realized, however, that when a force is halted within striking distance of an enemy the danger of attack will increase with the duration of the halt. The enemy will then have opportunities of procuring information and of making his offensive arrangements.

c. Unless the enemy has had opportunity for detailed reconnaissance, any night attack attempted is likely to be along clearly marked routes such as roads, railways, the bottoms of valleys, and the tops of ridges. Such lines of approach must therefore be held strongly at night, machine-gun fire being of particular importance. Outposts will be protected by obstacles. Light signals or other means will be provided for giving the alarm.

5. PROTECTION DURING BATTLE.—When two forces finally come into close contact each will be deployed on its battle frontage and will be maintained in a state of complete readiness for action. Subordinate units will protect themselves by means of sentries and patrols. It may often occur in these circumstances that no orders can be issued by superior authority as to measures of protection. The commanders of advance troops will then be responsible for taking the necessary steps for securing themselves against surprise and keeping in touch with the enemy and for informing their superiors as to the situation.

6. HALTS.—During halts the command will be disposed in combat teams. A division commander will prescribe halt areas for his reinforced-brigade combat teams and for his special columns and units. The areas for the latter will be so selected as to derive the maximum protection from their location with respect to the combat teams. Likewise the commanders of the major combat teams will prescribe areas for their subordinate combat teams. Such areas should be selected so as to be capable of independent protection, and, so far as possible, with a view to coordinated action between the subordinate combat teams.

**RELATIONS OF THE ARTILLERY COMMANDER AND  
THE ARTILLERY STAFF WITH THE DIVISION  
COMMANDER AND THE GENERAL STAFF**

[7 February 1936]

1. In preparing his plan, the division commander will usually consult the artillery commander. In certain situations, the time available may permit no such consultation. In other situations, advice on artillery matters may not be necessary. Ordinarily, however, the division commander, before deciding upon his plan, will avail himself of the opinion of his artillery commander as to employment of the artillery.

2. The artillery commander should be looked upon as the adviser to the division commander, and to a lesser degree to the chief of staff. He will rarely work directly with the G-3 or other assistant chiefs of staff. In general, the artillery staff works with the general staff and the artillery commander with the division commander or chief of staff.

3. The division commander's plan usually includes instructions for the employment of the artillery. These instructions very frequently will be limited to a broad general mission for the artillery, for example, where the fire is to be massed, or the front or unit to be given preponderance of support. Additional instructions may be included covering any special mission the division commander believes of sufficient importance to include in his plan.

4. The instructions contained in the division commander's plan are usually sufficient to permit the artillery commander to decide upon the tentative plan for the employment of the artillery. He informs his staff of this tentative plan and requires them to prepare the necessary details. This tentative plan contains the substance of the matter which will be published in the artillery subparagraph of the division order (artillery general plan) and the matter to be published in the artillery order (artillery detailed plan).

5. Using the artillery commander's tentative plan as a basis, the S-3 prepares specific recommendations for the employment of the artillery and after they are approved—usually by the brigade executive—presents them to the G-3. The G-3 may modify these recommendations or add to them. When the recommendations are approved—usually by the chief of staff—they form the basis for both the artillery subparagraph of the division order and the artillery commander's orders to his subordinate units. In order to permit the artillery to proceed with its preparations without delay, this approval may be obtained promptly and before the complete draft of the division order has been prepared. If the G-3 desires it, the S-3 may assist in the actual preparation of the artillery subparagraph of the division order.

6. In short, the procedure usually is as follows: the division commander, who has consulted the artillery commander, announces his plan, which includes general instructions for the artillery; the artillery commander announces his tentative plan to his staff; the staff prepares the necessary details; the S-3, after securing approval, presents pertinent parts of the tentative plan to G-3; the G-3 adjusts this plan, assisted as may be necessary by the S-3, and obtains approval therefor; the G-3 prepares the artillery subparagraph securing any assistance he may desire from S-3.

7. The preparation of prompt and appropriate orders to subordinate artillery units is of primary importance, and the artillery commander must give the necessary instructions for these orders before leaving his command post. The preparation of the details, however, is the function of the artillery staff. The artillery commander should be free to perform the more important duties of a commander. Usually, the artillery commander will not be free to leave his command post until he knows what instructions to the artillery are to appear in the division order and the artillery staff has been given the necessary instructions for the preparation of the artillery orders. In some situations he may remain at his command post to give personal approval to the artillery orders; in other situations, the approval may be entrusted to the brigade executive.

## SUPPLEMENTS

### *Map Problem No. 24:*

The purpose of Map Problem No. 24 is, first, to emphasize the fact that the terrain study leading to the selection of a defensive position, where an early passing to the offensive is contemplated, must be made with more than ordinary care. This is true because the position selected must not only be favorable for the defensive phase, but also it must be such that the terrain favors, to the greatest extent possible, the counter-offensive phase.

The second purpose is to indicate the principal command and staff activities of the principal officers concerned with operations in a situation requiring rapid action to dispose the command for defense.

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### *Map Problem No. 31:*

Map Problem No. 31 illustrates some of the problems of supply and evacuation in the division attack when the administrative plans must be changed because of the interruption of the lines of communication by the enemy.

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### *Map Problem No. 32:*

The purpose of Map Problem No. 32 is to illustrate the principles of an attack by a wide envelopment and a troop leading procedure for the division commander, the chief of staff, and the assistant chief of staff, G-3, in an operation of this type.

## Section 6

### LIBRARY BULLETIN

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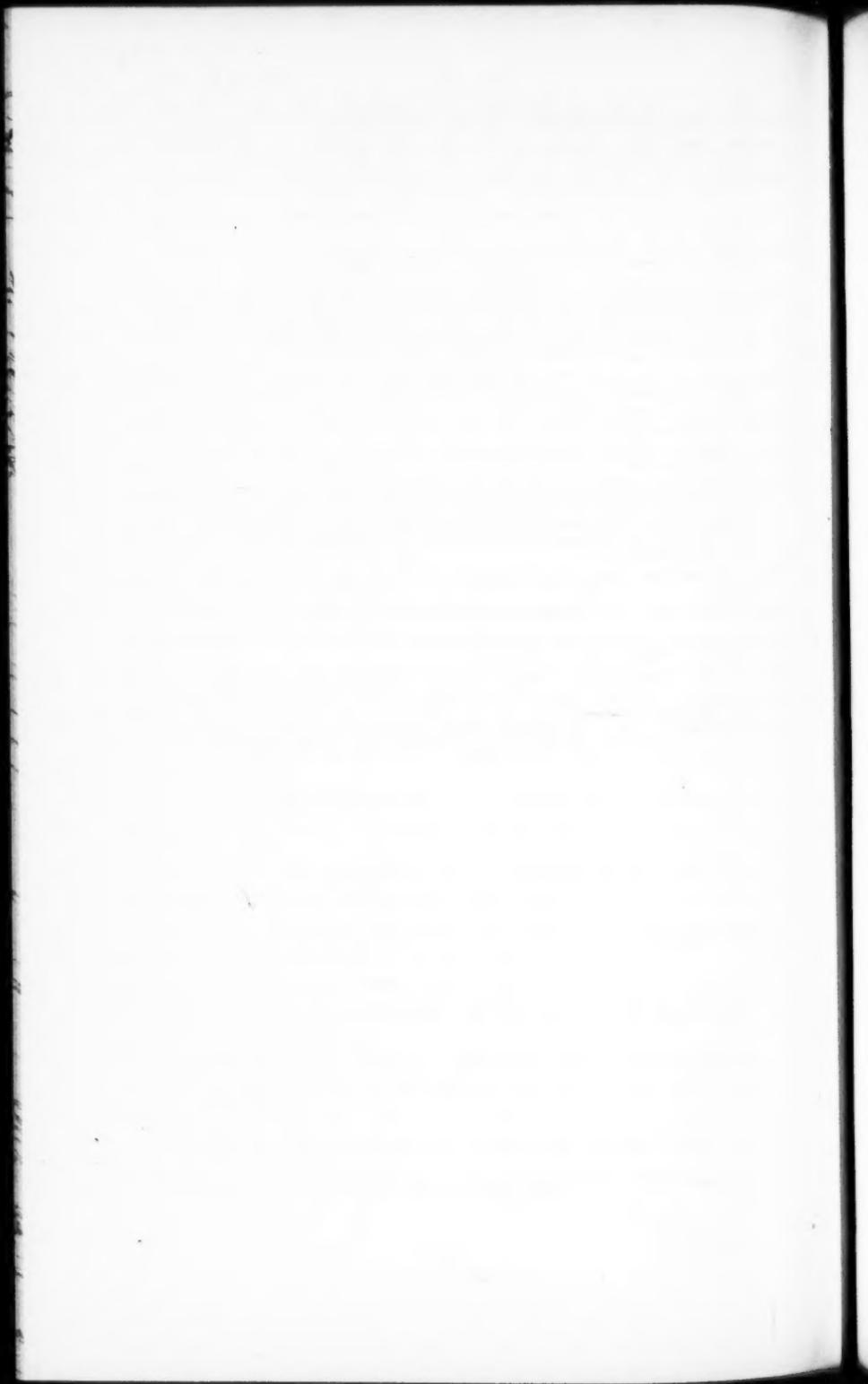
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## Section 7

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Air Arm	Mechanization
Ammunition	Medical Service
Animals	Meeting Engagement
Antiaircraft Artillery	Mining
Antiaircraft Defense	Mobile Warfare
Antigas	Mobility
Antitank	Mobilization
Applicatory Exercises	Motorization
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Equitation	Security
<b>F</b>	Signal Service
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<b>G</b>	Defensive combat
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<b>I</b>	Terrain
Infantry	Topography Surveying
Intelligence (Military)	Transportation
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<b>K</b>	<b>V</b>
L	Veterinary Service
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Law, Military & International Leadership	<b>W</b>
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	Wars (Ancient, Medieval, Modern)
	World War
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	E—General Military History
	F—Zone of Interior
	G—Arms & Services
	H—Military Conduct of the War in the Field
	J—Campaigns & Battles
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Map Problems	<b>Z</b>

## List of Periodicals Indexed

and

## Key to Abbreviations

A Med Bul—Army Medical Bulletin	Mil Eng—Military Engineer
AN&AF Gaz—Army, Navy & Air Force Gazette (Great Britain)	Mil Surg—Military Surgeon
A Ord—Army Ordnance	Nav Inst Proc—Naval Institute Proceedings
A Quar—Army Quarterly (Great Britain)	Naz Mil—Nazione Militare (Italy)
Bul Belge Mil—Bulletin Belge des Sciences Militaires (Belgium)	Pion—Pioniere (Germany)
Can Def Quar—Canadian Defence Quarterly (Canada)	QM Rev—Quartermaster Review
Cav Jour—Cavalry Journal	Rev Ej Mar—Revista del Ejercito y de la Marina (Mexico)
Cav Jour [GB]—Cavalry Journal (Great Britain)	Rv l'Air—Revue de l'Armee de l'Air (France)
Chem War—Chemical Warfare Bulletin	Rv d'Art—Revue d'Artillerie (France)
CA Jour—Coast Artillery Journal	Rv de Cav—Revue de Cavalerie (France)
FA Jour—Field Artillery Journal	Rv d'Inf—Revue d'Infanterie (France)
Ftg Forc—Fighting Forces (Great Britain)	Rv Gen Mil—Revue du Génie Militaire (France)
Inf Jour—Infantry Journal	Rv Mil Suisse—Revue Militaire Suisse (Switzerland)
Jour R Art—Journal Royal Artillery (Great Britain)	Riv Art e Gen—Rivista di Artiglieria e Genio (Italy)
Jour RUSI—Journal of the Royal United Service Institution (Great Britain)	RAF Quar—Royal Air Force Quarterly (Great Britain)
Jour USII—Journal of the United Service Institution of India (Great Britain—India)	RASC Quar—Royal Army Service Corps Quarterly (Great Britain)
MC Gaz—Marine Corps Gazette	Roy Eng Jour—Royal Engineers Journal (Great Britain)
Mil Mitt—Militärwissenschaftliche Mitteilungen (Austria)	Sanct Chris—Sanct Christophorus (Germany)
Mil-Woch—Militär-Wochenblatt (Germany)	SC Bul—Signal Corps Bulletin
	Wa & Wr—Wissen und Wehr (Germany)

Jan—January  
Feb—February  
Mar—March  
Apr—April  
May—May  
Jun—June

Jul—July  
Aug—August  
Sep—September  
Oct—October  
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Dec—December

**A****ACCOMPANYING ARTILLERY**

Artillery-infantry liaison. Accompanying artillery of the infantry regiment. (Rv d'Inf—Jul 1935)

**ADDRESSES**

Schools and the individual. (Chem War—Oct 1935)

Psychological factors in leadership. (Chem War—Oct 1935)

Procurement, past and future. (Chem War—Oct 1935)

British and German methods of gas warfare. (Chem War—Oct 1935)

**AERIAL WARFARE**

The defence of the population against air attack. (Jour RUSI—Nov 1935)

Bombardment of railways and railway stations. (Rv l'Air—Jul 1935)

French and British ideas on aerial warfare. (Mil-Woch—18 May 1935)

Cannon aircraft and tactics of air combat. (Mil-Woch—18 Jun 1935)

**ARM AIR****Organization and Equipment**

Air tactics and aircraft design. (Nav Inst Proc—Dec 1935)

The "motor cannon" and the single-seater fighter. (AN&AF Gaz—12 Dec 1935)

The comparative strengths of world air forces. (AN&AF Gaz—9 Jan 1935)

Fighters with guns and the tactics of the air battle. (AN&AF Gaz—16 Jan 1936)

An American experiment. (AN&AF Gaz—23 Jan 1936)

The problem of signal communication for the GHQ air force. (SC Bul—Jan-Feb 1936)

Bomber formations in the next war. (RAF Quar—Jan 1936)

Armament and air gunnery. (RAF Quar—Jan 1936)

The airship as a military conveyance in the past and future. (Ws & Wr—Aug 1935)

A discussion of the Delsasso acoustic altimeter. (Rv l'Air—Jul 1935)

The sixteenth Royal Air Force display, 29 June 1935. (Rv l'Air—Aug 1935)

The fourth display of the S.B.A.C. (Rv l'Air—Aug 1935)

New military aircraft shown in above two displays. (Rv l'Air—Aug 1935)

New military aircraft shown at the Royal Air Force display and the S.B.C.A. display in 1935. (Rv l'Air—Sep 1935)

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Latest foreign ideals on an "all-purpose" plane. (Mil-Woch—11 Jul 1935)

An historical day for German aviation. (Mil-Woch—11 Sep 1935)

Use of aviation attached to tanks. (Mil-Woch—25 Sep 1935)

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**Training Tactics**

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Combat tactics of biplane aircraft against pursuit. (Rv l'Air—Jul 1935)

The aerial and maritime warfare off Flanders in 1917. (Rv l'Air—Jul, Aug, Sep 1935)

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Dive bombing. (Rv l'Air—Aug 1935)

Photographs of aviation in the Dardanelles campaign. (Rv l'Air—Aug 1935)

Aviation and geography. (Rv l'Air—Sep 1935)

Tanks and aviation; the modern weapons of the future. (Sanct Chris—Jul 1935)

Concerning the cooperation between mechanized units and aviation. (Sanct Chris—Aug 1935)

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The strategical reconnaissance by aviation. (Mil-Woch—25 Jul 1935)

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Distant missions by bombing squadrons at night. (Mil-Woch—18 Sep 1935)

Use of aviation attached to tanks. (Mil-Woch—25 Sep 1935)

The significance of fortresses in the age of tank, air and chemical warfare. (Mil-Woch—4 Oct 1935)

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"Are the weights of shell of the various categories of Field Army Artillery, the most suitable, having regard to the various roles which the latter may have to undertake and the varied theatres of war in which they may have to act?" (Jour R Art—Jan 1936)

Ammunition expenditure during the War from 1914 to 1918. (Rv d'Art—Aug, Sep 1935)

Tanks and statistics: The consumption of ammunition. (Rev d'Inf—Sep 1935)

**ANIMALS**

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Honors rendered to the horse. (Rev Ej Mar—Aug 1935)

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Organization of guns in antiaircraft regiment. (CA Jour—Jan-Feb 1936)

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**ANTIAIRCRAFT DEFENSE**

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The defence of the population against air attack. (Jour RUSI—Nov 1935)

Organization of guns in antiaircraft regiment. (CA Jour—Jan-Feb 1936)

Antiaircraft defense. (Mil-Woch—4 Sep 1935)

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### ANTITANK

The defense against cross-country vehicles. (Bul Belge Mil—Jul 1935)  
Artillery-infantry liaison. Accompanying artillery of the infantry regiment. (Rv d'Inf—Jul 1935)  
The fire of tanks. (Rv d'Inf—Aug 1935)  
Combat of tanks versus tanks. [See Section 2]  
Employment of tanks in the attack. [See Section 2]  
Present tank characteristics and the effect of antitank weapons. (Mil-Woch—18 May 1935)  
Tank versus antitank defense? (Mil-Woch—25 May, 4 Jun 1935)  
Organization of a unit to establish barriers for armored vehicles. (Mil-Woch—11 Jun 1935)  
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Obstacles versus tanks. (Mil-Woch—4 Sep 1935)  
Another use of the antitank company. (Mil-Woch—4 Sep 1935)

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Where are the difficulties of the modern combat squad? (Mil-Woch—4 Jun 1935)  
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The theory of mechanization. (Inf Jour—Nov-Dec 1935)  
From Draa to Tindouf via the Hamada Desert. (Rv de Cav—Jul-Aug 1935)  
Latest data relative motorization of foreign armies. (Sanct Chris—Jul 1935)  
The armored car—the latest means for ground reconnaissance. (Sanct Chris—Aug 1935)  
Armored car reconnaissance detachment. [See Section 2]  
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Motorized units and their use. (Mil-Woch—18 Aug, 4 Sep 1935)

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A group as fire unit. (Riv Art e Gen—Jun 1935)  
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Division artillery in the defense. [See Section 2]  
 Employment of tanks in the attack. [See Section 2]

## ATTACK

Charge of the 4th Australian Light Horse Brigade at Beersheba, 31st October, 1917. (Cav Jour [GB]—Jan 1936)

Chemical security. (Inf Jour—Nov-Dec 1935)  
 The British capture of Manila. (Inf Jour—Nov-Dec 1935)

Defense of the Suez Canal. (A Ord—Sep-Oct, Nov-Dec 1935)

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The defence of the population against air attack. (Jour RUSI—Nov 1935)

The tactical employment of smoke. (Mil Eng—Jan-Feb 1936)

The gas attack at Ypres. (Chem War—Jan 1936)

With a German attack division during the offensives of 1918. (Ws & Wr—Jul 1935)

An exercise of a company in garrison. (Bul Belge Mil—Sep 1935)

Combat of tanks versus tanks. [See Section 2]  
 Employment of tanks in the attack. [See Section 2]

Tank exercises in winter. [See Section 2]

## AUSTRIA (ARMY OF)

The development of tactics in the Austrian Army from the beginning of the World War up to the present. (Mil Mitt—Jun, Jul, Aug, Sep 1935)

A cavalry charge upon infantry, 10 October 1914. (Mil Mitt—Aug 1935)

## B

## BELGIUM (ARMY OF)

A visit to the Belgian Horse Breeding System. (Rv de Cav—May-Jun 1935)

Address given by the Minister for National Defense at the Belgian Reserve Officers' Banquet, 16 June 1935. (Bul Belge Mil—Jul 1935)

The Centennial at the Ecole Militaire, 30 June 1935 to 7 July 1935. (Bul Belge Mil—Aug 1935)

The origin of the military bicycle in Belgium. (Bul Belge Mil—Sep 1935)

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Latest data relative motorization of foreign armies. (Sanct Chris—Jul 1935)

King Albert I and the Belgian infantry. (Rv d'Inf—Jul 1935)

## BREAKTHROUGH OPERATIONS

Thoughts of the breakthrough based on the summer campaign of 1914. (Ws & Wr—Jul 1935)

## C

## CAMOUFLAGE

Notes on war of movement. (FA Jour—Nov-Dec 1935)

Notes on war of movement. (Rv Mil Fran—Jul 1935)

## CANADA ARMY (OF)

"Can Canada defend herself?" (Can Def Quar—Jan 1936)

## CANADA (NAVY OF)

"Can Canada defend herself?" (Can Def Quar—Jan 1936)

## CAVALRY

### History

Antoine Fortuné de Brack. (Rv de Cav—Sep-Oct 1935)

### Organization and Equipment

Tactical uses of horse vans or semi-trailers. (Cav Jour—Nov-Dec 1935)

Use of cavalry under modernization. (Cav Jour—Nov-Dec 1935)

Dragoons horsed and motored, at the Horse Show of 1935. (Rv de Cav—May-Jun 1935)

### Training Tactics

The cavalry in France, August-November, 1918. (Cav Jour [GB]—Jan 1936)

Two cavalry raids of the Great War. (Cav Jour [GB]—Jan 1936)

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Cavalry in mountain warfare. (Rv de Cav—Jul-Aug 1935)

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Horse and motor. (Mil-Woch—18 May 1935)

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Defense of the Suez Canal. (A Ord—Sep-Oct, Nov-Dec 1935)

An exercise of a company in garrison. (Bul Belge Mil—Sep 1935)

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Strategic raw materials. (QM Rev—Jan-Feb 1936)

The tension between the United States and Japan. (Ws & Wr—Sep 1935)

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Water supply in a desert country. (Roy Eng Jour—Dec 1935)

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The trip of Captain Pickery in Macedonia, September 1918. (Rv Gen Mil—Jul-Aug 1935)

River crossings executed by the German Army in the World War. (Bul Belge Mil—Sep 1935)

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Forced crossings of the San in May 1915. (Rv Mil Fran—Sep 1935)

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Twenty years ago: The utilization of the Russian fortresses during the operations in East Prussia, 1914-1915. (Mil-Woch—18 May 1935)

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Thoughts of the breakthrough based on the summer campaign of 1914. (Ws & Wr—Jul 1935)

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Armament and air gunnery. (RAF Quar—Jan 1936)

Dragoons horsed and motored, at the Horse Show of 1935. (Rv de Cav—May-Jun 1935)

Antoine Fortuné de Brack. (Rv de Cav—Sep-Oct 1935)

Organization of field artillery. (Rv Mil Suisse—Jul 1935)

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#### GERMANY (NAVY OF)

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##### Philippine Islands

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